

HARVARD STUDIES IN EDUCATION  
PUBLISHT UNDER THE DIRECTION OF THE  
GRADUATE SCHOOL OF EDUCATION  
  
VOLUME IV



# RELATIV FREQUENCY OF ENGLISH SPEECH SOUNDS

BY

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CAMBRIDGE  
HARVARD UNIVERSITY PRESS  
LONDON  
SIR ISAAC PITMAN & SONS, LTD.

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*The text of this investigation is speld in accord with the recommendations of the Simplified Spelling Board. In the material investigated the conventional spelling, as found, has been adhered to strictly thruout.*

*The fonetist and filologist has always been among the first to recognize the immense importance of the movement for reform of English spelling, which commands the united support of the leading language scolars both of England and America. He should be willing to bear his share of the prejudice which some must endure in the course of progress toward a rational orthografy.*

*Simpler Spelling Association, Lake Placid Club, N.Y., wil send ful information concerning this important movement on request.*

## INTRODUCTION

This investigation, based on a sufficient number and variety of modern texts, conducted on sound principles and with scrupulous care, aside from its obvious utility for shorthand and for instruction in reading, is of value to foneticians in that it affords abundant choice material for the study of the adjustment of sound to sound in the sillable. To the linguist it furnishes also a starting point for comparison of one language with another, in respect iether to acoustic effect or to the caracteristic operations of the vocal organs; and it provides, in its word list, a foundation for comparativ estimates of current vocabulary as an index of national civilization. To one interested in the history of speech, or the history of thought, it suggests and facilitates a series of comparisons of present and past aspects of English, whether one consider the language as an aggregate of sound-patterns or as a medium of expression. Multiple are the uses to which these tables may be put. It is to be hoped that many scolars, in many fields, will avail themselves of them.

C H GRANDGENT

HARVARD UNIVERSITY  
January, 1923



## PREFACE

Study of the fonetic facts of English has been heretofore almost wholly qualitativ. Recently, to be sure, there has been a growing series of word counts, purporting usually to determin the most frequently occurring words of the language, but the more searching and for many purposes more significant investigation of the relativ frequency of sillables and of sounds has been quite neglected.

The principal educational use of such word lists thus far has been in connection with that short-sighted misdirection of effort which treats the simptoms insted of the disease of our present indefensible conventional spelling. For this and other more profitable purposes, however, accurate lists of the commonest words of English hav great value, and the present lists ar believd to offer 2 markt advantages. 1: A much greater diversity in selection of material analized givs much wider validity to the results. 2: The accuracy and significance of the lists ar not impaired by an indefinit "judgment factor" in the combining of derivativs and inflected forms. For certain purposes complete separation of all variant forms may be most useful, for others sistematic grouping of the derivativs of each root form; but there is no valid excuse for the usual practise of an indeterminate "personal judgment" mixture of the 2. This study presents both treatments, separately, and separately indext.

All of the quantitativ data on sillables and most of the data on simple sounds ar, so far as I know, unique and of great potential importance in several different fields of study and teaching.

In the pedagogy of writing, tiping, or shorthand the word lists hav great value, whether in providing material from which to organize a textbook or course of study, or in placing the emfasis most effectivly in using material

predetermined by other conditions. Lacking such data much wasted effort results from confusion between merely familiar words and words of genuinely common occurrence. In devising, and still more in testing or evaluating reading methods, the syllable and sound data also will be most significant — likewise in the problems of speech correction. Further and varied uses will readily suggest themselves to the educator familiar with the resources of these tables.

All data here presented are of the most fundamental importance for constructing a system of shorthand for general use, which must be in harmony with the phonetic facts of English. These data have been utilized to the fullest extent in devising both the structure and presentation of *Personal Shorthand*,<sup>1</sup> a scientific development of accepted shorthand principles, and of *Demotic Shorthand*,<sup>2</sup> a revolutionary shorthand experiment which abandons 2 of the most firmly established fundamental principles of English language shorthand — single stroke signs for simple sounds, and small signs for vowels — and in so doing achieves a unique and unprecedented simplicity. The primary purpose, indeed, in securing these data was their indispensable importance as the first foundation of any scientific study of shorthand problems, but particular pains were taken to avoid specializing the investigation to this end, for the increased value for shorthand purposes would have been comparatively slight, while the more general value of the results for other phonetic, filologic, and educational purposes would have been materially reduced.

For the research laboratory of the engineering or manufacturing corporation dealing with such acoustic devices as the telephone or phonograph, these analytic quantitative data provide important material for study of the most efficient or effective transmission or reproduction of speech sounds.

<sup>1, 2</sup> Both superseded by the Dewey Shorthand series of textbooks, published by Dewey Shorthand Corporation, Lake Placid Club, N.Y.; distributed also by Pitman.

Finally, as Professor Grandgent has pointed out in his introduction, the establishment of reliable quantitative data as to the simple sounds and commoner sound combinations of English throws a new and valuable light on the studies of the fonetist, and affords material for a new and profitable field of investigation into the tendencies of language development.

In addition to the varied uses of the data here reported, the fonetic print alfabet itself, adapted from the Revised Scientific Alfabet for this investigation, and adopted subsequently by the Simplified Spelling Board for indicating pronunciation in its various publications, offers certain practical advantages in connection with the problem of fonetic spelling reform: in particular combining the least practicable degree of tipografic strangeness with that minimum degree of fonetic precision necessary for general popular use.

The clerical work of the investigation, which required more than 3,000 hours, was performed chiefly by 4 different assistants, at 3 different places — New York, Lake Placid Club, and Cambridge — at intervals during the past 4 years. Under the circumstances minor errors in the recording or manipulation of data hav been inevitable. Where necessary or desirable for purposes of comparison, such errors hav been reconciled in preparing this report. No such adjustment has affected any significant figure as much as .1 of 1 %, and most hav affected such figures less than .01 of 1 %.

Particular acknowledgment is due my ablest assistant, Miss Frances Wilson, who performed much of the more difficult fonetic classification and tabulation of the original investigation, and subsequently assisted me with the final checking, revising, reconciling and copying of the greater part of the data here presented.

GODFREY DEWEY

CAMBRIDGE, MASS  
January, 1923

## PREFACE TO THE REVISED EDITION

In the 27 years since this study was first publisht, it has abundantly justified the closing lines of Professor Grandgent's introduction which appears on page v. Altho the modest first edition has been out of print for a dozen years, I hav had reports of its use for as varied purposes at as widely scattered points as the teaching of English in Japan, the breaking of cipher codes in British India, developing an improved typewriter keyboard in Austria, the development of Zachrisson's Anglic [a form of world English spelling] in Sweden, and the development of Ogden's Basic English in Great Britain. All these ar in addition to the more obvious primary purposes of the study in connection with my own shorthand construction and the problems of simpler spelling and fonetics. It may be added that both Pitman in Great Britain and Gregg in the United States hav used this study, and quoted it as an authority, in the preparation or revision of shorthand textbooks.

My own constant use of these data over a series of years quickly reveald the considerable value of expanding Table 9 to show for each of the 1370 commonest sillables how often it occurd initially, medially, or finally in a word, or as a word by itself. This expansion has therefore been publisht in this revised edition as Appendix C. In addition, Appendix D givs two brief tables of *letter* frequencies ; which, while falling outside the declared scope of the study, giv a valuable check on the frequencies commonly assignd to the lower case letters in the printer's font, and provide an accurate and incontrovertible basis for estimating the saving to be effected by any proposed form of fonetic spelling for English.

So far as practicable, the errors discoverd in the first edition hav been corrected where they occur. Where the same error occurs in several places, or its correction would throw out column footings or cumulativ totals, it has been identified by an encircld number referring to an errata sheet at the end of the volume.

GODFREY DEWEY

LAKE PLACID CLUB, N.Y.  
January, 1950

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Part 1—Preliminary Discussion



## Part 1

### Preliminary Discussion

#### *Purpose*

The object of this study was to determin the relativ frequency of occurrence, in good English, as written and spoken today, of the various simple sounds and commoner sound combinations — sillables and words — of the English language.

#### *Previous investigations*

Previously publisht investigations hav delt almost wholly with relativ frequency of words, and too often hav been specialized, at least in their selection of material for analisis if not in their manipulation or presentation of data secured, for some particular purpose. The more important publisht word counts ar listed below, in crono-logic order, with brief comment.

Knowles, Rev J, *The London point sistem of reading for the blind*, London, 1904.

This list is based on analisis of 100,000 words of "passages from the English Bible and from various authors"; and givs, in order of frequency, with frequency of each, the 353 commonest words (occurring 25 times or more).

Eldridge, R C, *Six thousand common English words, their comparativ frequency and what can be done with them*, Niagara Falls, N Y, 1911.

This list, the only word count publisht *complete*, so far as I can find, is an analisis of 34,989 words from 4 issues of 4 different Sunday newspapers publisht in Buffalo in July and August, 1909; and givs in order the frequency of every word, 6002 different words, of which the most frequent 750 constitute over 75% of the whole material analized.

#### 4      *Relativ Frequency of English Speech Sounds*

Ayres, Leonard P, *The spelling vocabularies of personal and business letters*, Russell Sage Foundation, New York, 1913.

This tabulates 23,629 words from 2,000 short letters written by 2,000 people; finding 2,001 different words and reporting the frequency of the more common.

Cook, W A, & O'Shea, M V, *The child and his spelling*, Bobbs-Merrill, 1914.

This list is based on 200,000 words from the family correspondence of 13 adults. Several alphabetic lists, with frequencies, are given, showing 186 words used by all 13 correspondents, 577 words used by a majority of the correspondents, etc; but no clear statement is made, or obtainable without complete retabulation, as to the most frequent words or their combined frequency. Only 5,200 different words are found in the total 200,000.

Jones, W Franklin, *Concrete investigation of the material of English spelling*, University of South Dakota, 1914.

This list tabulates 4532 different words, occurring in about 15,000,000 words of specially written grade themes, according to the grade in which each was first used by at least 2% of the students, but gives no more direct information as to relative frequency. The investigation lists also 100 spelling demons, or the 100 words of English most often misspelt.

Ayres, Leonard P, *A measuring scale for ability in spelling*, Russell Sage Foundation, New York, 1915.

This list, much the most widely quoted at the present time, is based on the material of the first 4 lists above cited, properly weighted and combined and reduced to a basis of occurrences per 100,000 words. Ayres says: "The aggregate amount of written material analyzed in securing these results was approximately 368,000 words, written by some 2,500 different persons. More than  $\frac{1}{3}$  of the material consisted of personal and business letters."

Ayres' list gives in order of frequency, with frequency of each per 100,000 words, the 1000 commonest words, which make up 91,899 per 100,000; the 100 commonest making up 59,591. Owing no doubt to lack of any equally accurate and comprehensive count based on more diversified material, Ayres draws altogether too sweeping conclusions as to the percentage importance in all or general matter of the commonest words which he reports.

16 spelling scales, Teachers College Record, v 21, nr 4, (Sept 1920).

This investigation lists in alphabetic order, with frequencies, the second and third thousand commonest words derived from the material used by Ayres, above noted. Ayres rightly points out that the 1000 commonest words represent about the farthest limit at which any statement as to the commonest words has general significance independent of the particular material investigated.

Thorndike, Edward L, *The teacher's word book*, Teachers College, Columbia University, 1921. Discuss in article *Word knowledge in*

*the elementary school* in Teachers College Record, vol 22, nr 4, (Sept, 1921).

"*The teacher's word book* is an alphabetical list of the 10,000 words which ar found to occur most widely in a count of . . . (about 4,565,000 words). 41 different sources were used.

"A mesure of the range and frequency of each word's occurrence is given by the credit-number following it." Elsewhere it is stated: "The reader is askt to accept arbitrarily these credits since an explanation of the method by which they were obtaind is too involved to be given here."

This latest publication becomes increasingly unsatisfactory the more closely it is examind. The heterogeneous selection of material is by no means representativ of anything in particular, such as the words most used by school children or by adults, in reading or in writing; and as representativ of everything in general is scarcely more defensible. Furthermore, as Ayres\* rightly and clearly pointed out in 1915, beyond the 500 or at most the 1000 commonest words, no statement of the inherently commonest words of English, independent of the particular material analized, is possible.

The complex credit-number scheme by which the quantitativ data ar reported is glaringly defectiv and misleading, with respect to the most common words at least. Compare Thorndike's rating and Ayres' per cent for the 6 commonest words of the present investigation, together making up over 20% of all words found:

Word	Dewey %	Ayres %	Thorndike rating
the.....	7.3	6.4	208
of.....	4.0	3.4	205
and.....	3.3	3.4	210
to.....	2.9	3.2	208
a.....	2.1	1.9	208
in.....	2.1	1.9	211
(For the least frequent of the 1000 commonest words.....	.011	.012	49)

Space forbids further comment, but in other important particulars, including an express or implied confidence in the results not warranted by the basic conditions, this latest and most extended word count is open to serious criticism.

- ① There ar, in addition to the above, several unpublisht word counts, of which the erliest and best diversified is that made by Melvil Dewey, about 1900, as a basis for his notehand list of 100 abbreviations for the most common words. This counted 60,000 words, in twelv 5000 word selections from standard English literature, but

\* A measuring scale for ability in spelling, page 9.

## 6      *Relativ Frequency of English Speech Sounds*

unfortunately did not itemize the infrequent words counted, and so could not be used as a basis for analisis of sillables and sounds.

The enormous amount of time and effort expended on such studies as Cook & O'Shea, Jones, Ayres, etc, which investigate and attempt to provide objectiv mesurement of the difficulties of the conventional English spelling, must be included among the conspicuous wastes, in education, even more than in commerce and international relations, for which our present English spelling is responsible. In view of the consensus of all competent authority as to the anomalous and indefensible caracter of our present orthografy, such effort is fairly comparable to the establishment at a grade crossing of a modern emergency hospital, insted of regrading the crossing to eliminate the hazard.

The conspicuous defect of most of the foregoing word counts is insufficient diversity of material to assure a representativ caracter. It was for this reason principally that I considerd it necessary to make my own word count of 100,000 words of carefully diversified material, insted of basing my sound and sillable analises on word counts alredy available. The soundness of this decision is strikingly emfasized by comparing the final summary of the Cook & O'Shea count above noted, which finds only 5,200 different words in 200,000, with my own results which find 10,161 different words in 100,000.

A warning should be inserted here against attempting to compile data with respect to sillables or sounds on the basis of any list of commonest words only, however good. It is an interesting and significant fact that some of the commonest sillables of the language scarcely occur among the 500 or even 1000 commonest words, but owe their importance rather to occurrence in many different words each relativly infrequent. This is particularly true of prefixes, suffixes, and other combining forms of Latin or Greek origin, whereas in any short list of commonest words short and Anglo-Saxon words predominate. The result, as proved by ruf analises not here reported, is that analitic data based on commonest words *only* wil giv,

inevitably, a seriously distorted picture of the language as a whole.

With respect to sillables there exist no previous reliable data on even a small scale. Various fragmentary and unsupported statements occur in the literature of shorthand, but none give evidence of any adequate or dependable basis, and many betray a naive ignorance of the very nature of a sillable; as in the case of one author, not yet extinct, who gravely treats as a sillable *any* combination of 2 letters — and bases his system on the treatment!

The literature of shorthand contains similar fragmentary statements with respect to sounds, which agree chiefly in recognizing the preponderance of the 3 consonants, n t r, which Isaac Pitman called "the bones of the shorthand skeleton." The more frequent half of the consonants in these statements will be found to agree fairly well in selection, tho not in arrangement, with each other and with the facts; but with respect to the vowels, which have always constituted the weak point of English shorthand, owing largely to our intricate and disordered spelling, such statements are altogether unreliable.

There exists however one statement of the relative frequency of the simple sounds of English wholly scholarly and, with certain limitations, reliable. This was published in 1874 by William Dwight Whitney, in an essay entitled *The elements of English pronunciation.*\* It is based on analysis of 10,000 sounds, 1,000 each from 10 literary classics, 5 prose and 5 poetry, in accord with his own pronunciation. Professor Whitney was certainly entitled to take his own pronunciation as a standard, but unfortunately this procedure makes impossible any clear comparison with the present investigation, for the phonetic basis adopted differs just enough to make definite correlation of his results with the present series impossible. For the consonants, which admit of much closer comparison, differences of 10 to 20% are the rule, with a few much greater or smaller discrepancies; indicating clearly that 10,000 sounds afford much too narrow a basis for definite general conclusions.

\* Oriental and linguistic studies, p 202-276, Scribners, 1893.

## 8      Relativ Frequency of English Speech Sounds

In general it may be said that except for lists of the 100 or 1000 commonest words, which comparisons show to be based on too restricted selection of material, reliable data for this whole field hav been conspicuously lacking.

### *Material and methods*

Study of previous investigations indicated that 100,000 words of material would, if sufficiently diversified, furnish data adequate for the purposes desired. 10,000 words would perhaps hav sufficed to furnish reliable data on the simple sounds, but for the sound combinations, particularly the sillable combinations, for which no reliable comparativ data were available, 100,000 words seemed necessary, and sufficient.

The first step therefore was to select 100,000 words of connected matter adequately representativ of good English as used — written, spoken, and printed — today. This definition should be kept in mind in examining the table of selections which follows; as it accounts for the omission of Shakspere, and the literary classics of the 17th, 18th, and early 19th centuries, which however widely red do not represent the *usage* of today.

TABLE I  
MATERIAL ANALYZED

100,000 words of connected matter (excluding numerals and proper names), representativ of English as written and spoken today; no single source contributing more than 5,000 words.

	Words
15% newspaper editorial English	
New York Tribune.....	5,000
Boston Evening Transcript.....	5,000
Los Angeles Daily Times.....	5,000
15% newspaper news English	
Chicago Daily Tribune.....	5,000
Kansas City Star.....	5,000
Atlanta Constitution.....	5,000
15% modern fiction	
5% novel	
Winston Churchill ( <i>The Crisis</i> ).....	2,500
William Allen White ( <i>A Certain Rich Man</i> ).....	2,500

5% short story		
Rudyard Kipling ( <i>The Day's Work</i> ).....	2,500	
Mark Twain ( <i>The American Claimant, etc.</i> ).....	2,500	
5% drama		
William Dean Howells ( <i>The Mouse-trap, etc.</i> ).....	2,500	
Clyde Fitch ( <i>The Stubbornness of Geraldine</i> ).....	2,500	
10% modern American speeches		
Abraham Lincoln.....	5,000	
Theodore Roosevelt.....	2,500	
Woodrow Wilson.....	2,500	
5% personal correspondence		
Richard Harding Davis.....	2,500	
Robert Louis Stevenson.....	2,500	
5% business correspondence		
5 manuals of typewriting, business English, and short-hand — 1,000 words each.....	5,000	
5% modern advertizing		
19 advertisements representing leading advertisers, mediums, and agencies.....	5,000	
5% religious English		
Holy Bible (St Mark 1:1—).....	1,000	
Henry Ward Beecher ( <i>Sermons</i> ).....	1,000	
Phillips Brooks ( <i>Sermons</i> ).....	1,000	
Christian Herald (editorial).....	1,000	
Catholic News (editorial).....	1,000	
5% (popular) scientific English		
Scientific American.....	3,000	
Science.....	1,000	
Popular Mechanics.....	1,000	
5% modern 'special articles'		
Literary Digest.....	1,000	
American Magazine (2).....	2,000	
Outlook.....	1,000	
Independent.....	1,000	
5% magazine editorial English		
Independent.....	1,000	
Atlantic Monthly.....	1,000	
New Republic.....	1,000	
Pictorial Review.....	1,000	
American Magazine.....	1,000	
5% Saturday Evening Post		
100 words top second reading matter column, 50 consecutive pages.....	5,000	
5% Literary Digest		
Similar mechanical sampling.....	5,000	
Total number of words analyzed.....		100,000

## 10      Relativ Frequency of English Speech Sounds

The stages of the investigation may be subdivided into:  
1) Counting, recording, arranging, and listing the 100,000 words, 2) Transcribing the different words recorded in a fonetic notation based on the Revised Scientific Alfabet, 3) Analizing this fonetic transcription with respect to sillables, reducing the data thus secured from the medium precision (48 sound) basis of the Revised Scientific Alfabet to the minimum precision (41 sound) basis of the fonetic print alfabet adopted; arranging, charting, and summarizing the results in various ways, 4) Similar analisis, arrangement, and charting with respect to separate single sounds.

The word counting stage was expedited and checkt as far as possible by mecanical and other aids, including specially printed record cards, Veeder counters, Rand card holders, Smith steel signals, and a special card ledger desk. This stage, with the fonetic transcription on the original cards which accompanied it, required in all about 1200 hours. The methods used resulted in an error of not more than 3 words in any 5,000 word selection, and of only 3 words for the final total of 100,000.

In this basic count every variant of a single root was treated as a separate word; e g *large*, *larger*, *largest*, *largely* were treated as 4 separate words. This was of course essential to the analisis of sillables and sounds to follow. The 10,119 different word cards secured on this basis were arranged in order of frequency, and the 1,027 commonest which occurd more than 10 times each, listed, forming Table 3, the list of *Particular words* by frequency, which totals 78,633. These 1,027 cards were also arranged in alfabetic order and listed, forming Table 5, the index list of *Particular words*.

While this separate consideration of all variant forms was essential for the analisis to follow, the relativ frequency of the more common words grouping together all common variants of one root, is equally interesting and for some purposes more significant. The entire body of cards for particular words was therefore rearranged group-

ing † variants together : \* single analitic cards substituted for all groups totaling over 10 occurrences, and all cards now over 10 arranged and listed in order of frequency and in alfabetic order, forming the *Root words* lists, Tables 4 and 6, which parallel the *Particular words* lists above noted. In the *Root words* lists number in colum at left shows combined frequency, while number following / at right shows number of different forms which make up the total; omission of this / and number indicating that the word occurrd only in the form appearing in the list.

For the second stage it was necessary to hav: a) a definit authority for pronunciation; b) an explicit and unmistakable fonetic notation; and c) particularly for the third and fourth stages to follow, a definit linear order for the fonetic alfabet.

The Standard Dictionary (Funk & Wagnalls, New York) was chosen as the only possible authority for such an investigation by reason of its use of the Revised Scientific Alfabet (popularly known as the N E A key alfabet) for indicating pronunciation. The uncouth and obsolete "Webster" notation, quite similar in the other American dictionaries, misleading and objectionable for any fonetic purpose, is quite impossible as a basis for such an investigation, for on the one hand its complex and cumbersome diacritic notation represents the avowedly same sound in several different ways, while on the other it indicates certain differences of sound not merely subtle but according to the most competent authority non-existent. Murray's New Oxford Dictionary, using † the International Fonetic Association alfabet, was not completed, and would in any case hav conformd les closely to American usage.

\* 20 of the commonest suffix variants so group were

-s	-(a)tion(s)	-ive	-al
-ed	-ment(s)	(e)th	-ance
-ing(s)	-est	ful	-y
-er(s)	-(e)n	less	-ity
-ly	-ant	-ness	-able

Combinations such as *drive*, *driven*, in which a markt change in the sound of the root takes place, were *not* made.

† suffix.

‡ substantially.

The principal defect of the Revised Scientific Alfabet, for the particular purposes of this analisis, was its use of 4 complex digraf ligatures for the 4 consonant sounds of *thin then ship chap*, and its writing of the vowel difthongs by their component elements, interfering seriously with the mecanical ease and certainty of identifying and distributing sillables by their single explicit vowel element. These difficulties ar fully overcome in the fonetic alfabet adopted for this investigation, which is set forth in detail in Appendix A. This alfabet is based on careful study of all important previous attempts at a fonetic notation for English, and extended correspondence and conference with the ablest sonetists of the United States, including particularly Professor Raymond Weeks of Columbia and Professor Charles H Grandgent of Harvard, both of whom wer of great assistance in determining this notation and the question of linear order following. In view of its subsequent adoption by the Simplified Spelling Board, for indicating pronunciation in its various publications, it may be designated as the S S B key alfabet.

No definit linear order for a fonetic notation has been establisht by competent authority. The nearest approach to an accepted order is found in the usual presentations of the alfabet of Pitmanic shorthand, which proceed in general: from consonant to vowel to difthong; from explodant to continuant consonant groups, and from palatal to labial vowel groups; from front to back in point of articulation of consonants, from back to front in vowels; from surd to sonant in consonant pairs, from short to long (sometimes from long to short) in vowel pairs; with the 4 vowel difthongs usually distinguisht paird by their latter elements. These tendencies, useful for shorthand presentation, were carefully considered in establishing the definit order shown in Appendix A. This appendix wil repay careful study in interpreting the results hereafter presented.

The fonetic transcription from Key 1 of the Standard Dictionary to the word cards did not make the reduction from 48 to 41 sounds referd to in Appendix A. The 7 additional sounds interpolate readily in the linear order,

as will appear in Table 15 (page 125) which gives the frequency of the 48 sounds in phonetic order.

The preferred or first of alternative pronunciations was used uniformly.

The third stage, analysis by syllables, which required, including final tabulation of results, about 1080 hours, was based on the *Particular word* cards secured by stages 1 and 2; each card now containing among other data the total frequency, conventional spelling, and phonetic transcription of one word. Specially printed analysis cards, on which entries were made with a set of 100 rubber stamps numbered from 0 to 99, were used. The analysis was arranged to determine for each syllable not only its total frequency of occurrence but also how often it occurred initially, medially, or finally, or alone in words.

Immediately on completion of the syllable analysis above described the syllable cards were combined on a 41 sound basis, eliminating the 7 finest distinctions (see Appendix A) of the 48 sound dictionary key. This step gave about 4,400 different syllable cards, showing a total of about 143,000 syllables for the 100,000 words. The 1370 most frequent of these syllables forming 133,586 syllable occurrences, or over 93% of the total, form the basis of the syllable data hereafter reported.

The procedure of the fourth stage, analysis by sounds, which required in all about 720 hours, was similar to that above described for the syllable analysis. Two complete independent analyses by sounds were made, the first distinguishing the occurrence of sounds initially, medially, or finally, or alone in *syllables*; the second distinguishing their occurrence similarly in *words*. The total results of these 2 analyses gave an important and necessary check, the only check possible, on this stage of the investigation; while the separate data of both analyses are profoundly important as a guide to shorthand construction.

The total results of the sound analysis are reported on a 48 sound, a 41 sound, and a 40 sound basis, as will be described in the section on sounds. The results of the 2 more detailed analyses, showing position of sounds in syllables or words, are reported on a 41 sound basis only.

14 *Relativ Frequency of English Speech Sounds*

Incidental data on the occurrence of proper names, numerals, abbreviations, punctuation, etc, are summarized briefly in Table 2 following.

TABLE 2. INCIDENTAL DATA

(not included in count of 100,000 words analyzed)

Proper names.....	6,404
Numerals.....	2,102
Titles & salutations	
Mr.....	148
Mrs.....	44
General.....	44
Sir.....	33
Secretary.....	28
Miss.....	25
Judge.....	18
Dr.....	14
Gentlemen.....	13
Colonel.....	12
Other miscellaneous.....	<u>203</u>
	582
Abbreviations (not including titles)	
Co.....	16
No.....	13
Other miscellaneous.....	<u>81</u>
	110
Foren words (chiefly French & Latin)	42
Punctuation	
, .....	5,951
. .....	5,275
; .....	2,416
" " (1,108 x 2).....	2,316
, .....	835
— .....	540
: .....	442
? .....	330
! .....	304
( ) (122 x 2).....	244
: .....	218
\$ .....	76
& .....	23
/ .....	16
% .....	13
Other miscellaneous.....	<u>13</u>
	18,912
Number of sentences.....	5,446

Average length of sentence, including proper names but excluding numerals, etc:  $106,404 + 5,446 = 19.6$  words (about)

**Part 2—Words**



## Part 2

### Words

#### *Relativ frequency of the commoner words of English*

Tables 3 and 4 following show, in parallel colums, the frequency of every word occurring oftener than 10 times in 100,000 words: the left colum, *Particular words*, considering each variant form as a separate word; the right colum, *Root words*, grouping together all ordinary variants of one root.\* The figures following the bar at the extreme right show the number of variant forms so groupd in each case.

Summarizing Table 3, *Particular words*:

9	words	form over	25 %	of the whole	100,000
69	"	50 %	"		
732	"	75 %	"		
or					
10	words	make up	26,677	of the whole	100,000
100	"	54,303	"		
1,000	"	78,336	"		
and					

1,027 words occur over 10 times, totaling 78,633 words.

In the *Root words* table:

1,131 words occur over 10 times, totaling 87,358 words.

For the 1,000 commonest words, the *Root words* table exceeds the *Particular words* table by less than 10%, a difference which decreases progressively for any lesser number of words.

These figures I consider amply to justify the general conclusions that, of any specimen of connected English sufficiently long to be fairly representativ:

The	10	commonest	words	here	reported	wil	form	over	25%
(2)	100	"	"	"	"	"	"	50%	
	1,000	"	"	"	"	"	"	75%	

\* See page 10-11.

The first conclusion will undoubtedly hold for specimens as short as 1,000 words, the second should hold for 10,000 words or more, the third may or may not hold strictly for reasonably diversified material of 100,000 words or more. Beyond this point no *general* statement as to the most common words can be developed, even by counting 1,000,000 words or more,\* for the nature of the words encountered is no longer common to all grammatical discourse but varies more and more widely according to the subject matter of the material counted.

The figures here reported clearly indicate the too sweeping nature of previous conclusions as to the frequency or importance of the 1,000 commonest words—conclusions based on counts of not sufficiently diversified material.

Tables 3 and 4 of words in order of frequency are immediately followed by Tables 5 and 6 of the same words in alphabetic order, also in parallel columns and showing frequencies.

\* See statement by Ayres, referred to on page 5.

TABLE 3

7,310 the
3,998 of
3,280 and
2,924 to
2,120 a
2,116 in
1,345 that
1,216 it
1,213 is
1,155 I
1,035 for
846 be
839 was
782 as
775 you
727 with
680 he
643 on
617 have
600 by
589 not
585 at
572 this
542 are
529 we
517 his
504 but
478 they
466 all
458 or
454 which
445 will
433 from
411 had
390 has
368 one
331 our
330 an
③ 328 been
321 no
315 their
306 there
305 were
300 so
296 my
263 if
257 me
253 what
252 would
248 who

46,067 [50]

TABLE 4

7,310 the
3,998 of
3,280 and
2,924 to
2,120 a
2,116 in
1,488 it /4
1,367 that /3
1,236 I /5
1,224 is /2
1,035 for
956 be /3
850 was /2
808 you /5
782 as
727 with
687 he /3
658 have /3
643 on
600 by
589 not
585 at
572 this
549 are /2
537 we /3
517 his
504 but
495 they /4
467 all /2
464 will /6
458 or
454 which
433 from
414 had /2
390 has
389 one /3
357 our /3
330 an
329 been
329 my /2
329 there /3
321 no
319 their /2
307 were /2
300 so
285 him /2
283 your /4
277 can /4
267 would /2
263 if

46,922 /101

TABLE 3

237 when
234 him
228 them
222 her
214 war
214 your
210 any
210 more
210 now
208 its
205 time
204 up
203 do
203 out
197 can
194 than
189 only
188 she
170 made
169 other
166 into
164 men
163 must
163 people
161 said
160 may
156 man
153 about
153 over
152 some
152 these
146 two
145 very
139 before
134 great
133 could
132 such
131 first
129 upon
124 every
124 how
123 come
123 us
120 shall
118 should
115 then
113 like
113 well
111 little
111 say

54,303 [100]

TABLE 4

262 them /2
260 what /2
257 me
248 who
239 do /2
237 when
234 her /3
232 time /2
217 war /2
210 any
210 more
210 now
207 up /3
206 out /3
194 other /2
194 she /3
194 than
191 say /4
189 only
180 people /3
178 great /5
175 day /4
171 come /4
171 know /4
170 made
168 men /2
168 must /2
167 man /5
166 into
166 make /6
164 take /4
162 may /2
161 said
153 about
153 over
152 some
152 these
152 year /2
147 could /2
146 how /2
146 two
145 very
144 go /3
142 see /3
139 before
132 such
131 first
129 like /7
129 upon
127 give /4

55,899 /214

TABLE 3

108 because	127 work /7
108 being	126 thing /2
108 under	125 good /3
107 after	124 every
107 here	123 did /2
106 good	123 us
105 make	120 shall
105 most	119 should /2
104 many	119 way /2
104 much	117 after /3
104 those	117 get /3
104 way	117 world /4
103 see	115 then
103 world	113 well
102 know	112 little /2
101 day	111 country /5
101 never	110 here /2
100 did	110 just /4
99 new	110 long /7
95 down	110 right /6
94 even	109 under /2
94 long	108 because
93 years	107 most /2
92 country	104 many
91 business	104 much
91 right	104 new /4
89 get	104 those
89 life	101 never
86 just	100 use /6
④ 86 take	99 think /3
83 where	98 down /3
83 work	97 part /3
82 things	94 even
79 part	94 through /2
78 through	92 state /6
78 while	91 business
77 last	90 life /2
77 might	90 own /6
75 am	88 today /2
75 back	85 call /6
75 old	85 fact /4
75 own	85 last /4
75 three	85 place /4
73 against	84 large /4
73 go	84 might /5
73 think	84 old /4
71 came	83 back /5
71 matter	83 want /4
70 days	83 where
70 without	82 interest /4

58,795 [150]

TABLE 4

69 also	81 hand /4
68 public	81 high /4
④ 68 today	79 line /2
68 yet	79 while /2
67 don't	78 govern /9
67 same	76 matter /2
67 thought	75 am
63 each	75 ask /4
63 far	75 seem /3
63 home	75 thought /3
63 put	75 three
62 again	73 against
62 always	72 gun /3
61 nothing	72 mean /4
61 present a & n	72 possible /4
60 between	72 real /4
60 going	72 show /5
60 money	71 came
60 per	71 case /2
59 once	71 home /3
59 peace	71 order /4
59 woman	71 tell /3
59 year	70 act /8
58 another	70 without
58 away	69 also
58 cannot	69 cent /2
58 fact	69 look /4
58 half	69 need /6
58 still	69 public /2
57 give	68 name /5
57 government	68 power /3
57 power	68 present /3a & n
57 too	68 yet
56 yours	67 don't
55 found	67 pay /6
54 few	67 put /3
54 possible	67 same
53 does	67 ship /7
53 food	66 house /3
53 house	64 far /2
53 less	64 save /3
53 oh	63 does /2
52 best	63 each
52 case	63 los /3
52 line	62 again
52 place	62 always
52 says	62 fight /3
52 since	62 month /4
51 ever	62 peace /3
51 himself	61 nothing

61,055 /367

TABLE 3

61,717 [200]	64,538 /517
--------------	-------------

58,795 [150]

TABLE 3

51 let  
51 military  
51 tell  
51 why  
50 big  
50 got  
50 until  
50 went  
49 find  
49 five  
48 dear  
48 interest  
48 left  
48 order  
48 service  
48 set  
48 steel  
47 women  
46 among  
46 front  
46 given  
46 hand  
46 high  
46 means  
46 night  
46 small  
46 taken  
45 both  
45 morning  
45 used  
45 whole  
44 city  
44 enough  
44 gun  
44 next  
44 thing  
44 want  
43 army  
43 off  
43 pay  
43 side  
43 stand  
42 purpose  
42 soon  
42 whose  
41 during  
41 saw  
41 young  
40 believe  
40 call

64,064 [250]

TABLE 4

61 stand /3  
60 between  
60 money  
60 per  
60 true /2  
59 believe /5  
59 dear /5  
59 nation /3  
59 once  
59 report /6  
59 woman  
58 another  
58 away  
58 follow /4  
58 half  
58 live /4  
58 purpose /2  
58 still  
57 army /3  
57 cause /4  
57 find /3  
57 kind /4  
57 law /6  
57 too  
56 few /2  
56 found /2  
56 less /4  
56 letter /2  
56 train /5  
55 carry /4  
55 food /2  
55 general /4  
55 hour /4  
54 big /3  
54 eye /3  
54 form /8  
54 service /3  
54 set /3  
54 small /3  
54 turn /4  
53 number /4  
53 oh  
53 six /5  
52 best  
52 consider /8  
52 labor /6  
52 love /7  
52 near /4  
52 since  
52 whole /2

67,342 /676

TABLE 3

40 done  
40 fighting  
40 name  
40 situation  
40 something  
40 took  
39 cent  
39 labor  
39 large  
39 mind  
39 water  
38 battle  
38 conditions  
38 it's  
38 statement  
38 though  
37 almost  
37 course  
37 general  
37 nation  
37 several  
37 six  
36 ago  
36 asked  
36 doing  
36 either  
36 gave  
36 letter  
36 seen  
36 state  
36 use v  
35 amount  
35 children  
35 four  
35 full  
35 necessary  
34 books  
34 certain  
34 early  
34 law  
34 themselves  
33 brought  
33 capital  
33 coal  
33 end  
33 eyes  
33 forty  
33 known  
33 myself  
33 really

65,817 [300]

TABLE 4

51 city /4  
51 condition /2  
51 ever  
51 feel /3  
51 let  
51 military  
51 why  
50 certain /3  
50 end /5  
50 girl /2  
50 got  
50 hope /8  
50 pass /4  
50 side /2  
50 until  
50 went  
49 continue /11  
49 five  
49 force /6  
49 front /3  
49 night /2  
49 open /6  
49 pound /3  
49 water /3  
48 care /9  
48 commit /6  
48 left  
48 permit /5  
48 person /6  
48 plan /4  
48 point /3  
48 reason /6  
48 soon /2  
48 steel  
48 women /2  
47 full /3  
46 among  
46 build /7  
46 differ /7  
46 morning /2  
46 read /5  
46 require /5  
46 book /2  
45 both  
45 fail /6  
45 free /3  
45 keep /5  
45 price /4  
45 supply /4  
44 enough

69,751 /852

TABLE 3

33 save	44 meet /4
33 told	44 mind /3
33 yesterday	44 move /6
32 better	44 next
32 called	44 question /4
32 cause	44 result /4
32 feel	43 battle /3
32 free	43 boy /4
32 girl	43 off
32 hands	43 operate /9
32 keep	42 charge /4
32 love	42 direct /8
32 making	42 enemy /3
32 months	42 idea /2
32 need	42 mile /3
32 number	42 million /4
32 point	42 whose
32 rather	41 begin /4
32 subject	41 capital /6
32 wheat	41 during
32 wrong	41 early /3
31 afternoon	41 face /3
31 enemy	41 four /3
31 having	41 saw
31 kind	41 situation /2
31 open	41 soldier /5
31 real	41 young
31 show	40 done
31 whether	40 ease /5
30 able	40 increase /4
30 anything <sup>(3)</sup>	40 respect /8
30 ask	40 something
30 become	40 subject /4
30 cents	40 thousand /2
30 dinner	40 took
30 face	40 week /2
30 feet	40 write /5
30 hope	39 become /3
30 I'm	39 change /4
30 knew	39 child /4
30 knows	39 complete /5
30 look	39 friend /4
30 price	39 hold /5
30 seems	39 industry /4
30 true	39 object /10
30 truly	39 wrong /2
30 turned	38 announce /6
30 twenty	38 attack /4
29 committee	38 children /2
29 common	38 clear /7

67,368 [350] 71,794 /1,038

TABLE 4

29 further	38 course /2
29 future	38 demand /4
29 held	38 exist /6
29 idea	38 head /7
29 miles	38 necessary /3
29 past	38 office /2
29 view	38 politic /6
28 action	38 though
28 along	38 value /5
28 boys	38 wish /4
28 complete	38 word /3
28 lost	37 almost
28 nor	37 amount /3
28 result	37 cost /4
28 send	37 drive /4
28 sent	37 forty /3
28 use <i>n</i>	37 official /3
28 whom	37 reach /4
28 wish	37 remember /4
27 already	37 several
27 beginning	37 view /4
27 buy	36 ago
27 head	36 buy /5
27 lines	36 either
27 moment	36 express /6
27 office	36 farm /6
27 often	36 gave
27 party	36 help /5
27 quite	36 inform /4
27 saying	36 land /4
27 soldiers	36 organize /4
27 thousand	36 party /3
27 times	36 receive /4
26 hour	36 trouble /5
26 hours	36 wheat /2
26 impossible	35 car /2
26 itself	35 enforce /4
26 makes	35 perfect /4
26 perhaps	35 regard /5
26 pounds	35 special /5
26 seemed	34 destroy /7
26 special	34 issue /4
26 troops	34 late /4
26 value	34 loan /2
25 above	34 note /5
25 building	34 officer /3
25 different	34 recent /2
25 flour	34 speak /5
25 hear	34 success /5
25 help	33 afternoon /3

68,721 [400] 73,600 /1,223

TABLE 3

25 land  
25 loan  
25 others  
25 sea  
25 together  
25 week  
24 administration  
24 behind  
24 built  
24 child  
24 drive  
24 electric  
24 important  
24 indeed  
24 information  
24 knowledge  
24 month  
24 note  
24 opinion  
24 read, *present*  
24 second  
24 ten  
24 thirty  
24 wanted  
23 air  
23 began  
23 care  
23 carry  
23 charge  
23 clear  
23 comes  
23 coming  
23 company  
23 didn't  
23 eight  
23 except  
23 force  
23 ground  
23 guns  
23 heard  
23 looking  
23 mean  
23 modern  
23 near  
23 officers  
23 political  
23 poor  
23 position  
23 pretty  
23 question

69,901 [450] 75,182 / 1,394

TABLE 4

33 base /6  
33 brought  
33 coal  
33 heavy /5  
33 import /3  
33 moment /4  
33 please /3  
33 return /4  
33 school /4  
33 send /2  
33 serve /6  
33 simple /4  
33 sure /3  
33 talk /4  
33 told  
33 yesterday  
32 administer /6  
32 appear /5  
32 better  
32 control /5  
32 desire /6  
32 fire /4  
32 play /5  
32 propose /5  
32 rather  
31 bombard /5  
31 bring /3  
31 common /3  
31 effect /5  
31 ground /2  
31 happen /5  
31 hard /7  
31 hear /3  
31 road /2  
31 run /4  
31 sea /2  
31 secure /6  
31 street /2  
31 thank /4  
31 twenty /2  
31 whether  
30 able  
30 anything  
30 attend /6  
30 company /3  
30 dinner  
30 dollar /3  
30 employ /7  
30 feet  
30 field /2

75,182 / 1,394

TABLE 3

23 reason  
23 received  
23 school  
23 yes  
22 around  
22 court  
22 department  
22 dollars  
22 family  
22 hold  
22 however  
22 kept  
22 living  
22 million  
22 offensive  
22 official  
22 plan  
22 pound  
22 remember  
22 reports  
22 taking  
22 tea  
22 third  
22 worth  
21 alone  
21 can't  
21 carried  
21 change  
21 cost  
21 effort  
21 evening  
21 fight  
21 following  
21 glad  
21 hard  
21 heavy  
21 hundred  
21 list  
21 national  
21 needs  
21 o'clock  
21 perfect  
21 products  
21 proper  
21 road  
21 room  
21 street  
21 sure  
21 thank  
21 that's

70,979 [500] 76,611 / 1,555

TABLE 4

30 knew  
30 learn /3  
30 machine /3  
30 mere /2  
30 minute /3  
30 offense /3  
30 picture /3  
30 provide /4  
30 understand /3  
29 body /4  
29 cut /4  
29 deal /6  
29 effort /2  
29 entire /2  
29 expect /6  
29 figure /3  
29 further  
29 future  
29 grow /5  
29 happy /5  
29 held  
29 horse /2  
29 particular /3  
29 past  
29 product /4  
29 self /4  
29 sit /4  
29 trust /5  
28 account /5  
28 along  
28 answer /4  
28 electric /2  
28 lead /5  
28 mother /3  
28 nor  
28 opinion /2  
28 represent /7  
28 safe /4  
28 sent  
28 strange /5  
28 use *n*  
28 whom  
27 already  
27 authority /2  
27 bear /5  
27 defend /7  
27 execute /8  
27 final /3  
27 leave /4  
27 often

TABLE 3

21 trouble	27 patriot /6
21 truth	27 plain /3
21 unless	27 pretty /4
21 write	27 quite
20 account	27 rate /3
20 continue	27 wonder /5
20 field	27 worth /3
20 gone	26 chair /5
20 I'll	26 command /9
20 I've	26 deliver /5
20 justice	26 department /3
20 letters	26 discover /6
20 live v	26 eat /5
20 loss	26 establish /5
20 meeting	26 family /3
20 met	26 father /3
20 method	26 flour /2
20 mother	26 heart /7
20 nature	26 human /4
20 ourselves	26 immediate /2
20 pass	26 impossible
20 range	26 method /2
20 regard	26 pack /7
20 ships	26 perhaps
20 sort	26 seven /5
20 story	26 strike /3
20 talk	26 transport /3
20 victory	26 troops
20 within	25 above
19 age	25 agree /7
19 attention	25 air /3
19 beyond	25 apply /6
19 bombardment	25 arrive /4
19 bring	25 bond /3
19 cases	25 concern /4
19 check	25 correspond /5
19 easy	25 else /3
19 happy	25 evening /3
19 human	25 experience /3
19 interesting	25 favor /6
19 least	25 judge /5
19 material	25 knowledge /2
19 meet	25 low /5
19 memory	25 mine /5
19 milk	25 practical /2
19 oil	25 prepare /4
19 particular	25 realize /4
19 permitted	25 remain /5
19 plans	25 sense /5
19 ready	25 sort /3

71,962

[550]

TABLE 4

27 patriot /6	19 report
27 plain /3	19 seem
27 pretty /4	19 sense
27 quite	19 similar
27 rate /3	19 stooped
27 wonder /5	19 strength
27 worth /3	19 success
26 chair /5	19 supply
26 command /9	19 system
26 deliver /5	19 thinking
26 department /3	19 till
26 discover /6	19 toward
26 eat /5	19 train
26 establish /5	19 understand
26 family /3	19 word
26 father /3	18 although
26 flour /2	18 answer
26 heart /7	18 artillery
26 human /4	18 attack
26 immediate /2	18 body
26 impossible	18 bonds
26 method /2	18 cars
26 pack /7	18 cut
26 perhaps	18 doubt
26 seven /5	18 duty
26 strike /3	18 eye
26 transport /3	18 fifty
26 troops	18 foreign
25 above	18 form
25 agree /7	18 fresh
25 air /3	18 girls
25 apply /6	18 heart
25 arrive /4	18 history
25 bond /3	18 largest
25 concern /4	18 leave
25 correspond /5	18 light
25 else /3	18 machine
25 evening /3	18 merely
25 experience /3	18 news
25 favor /6	18 numbers
25 judge /5	18 places
25 knowledge /2	18 play
25 low /5	18 probably
25 mine /5	18 problem
25 practical /2	18 rate
25 prepare /4	18 recent
25 realize /4	18 required
25 remain /5	18 rest
25 sense /5	18 run
25 sort /3	18 ship

77,896 /1,750

TABLE 3

19 seem	25 system /7
19 sense	25 thirty /2
19 similar	25 together
19 stooped	25 try /2
19 strength	25 watch /3
19 success	24 accord /4
19 supply	24 address /4
19 system	24 age /3
19 thinking	24 ally /3
19 till	24 awful /2
19 toward	24 beauty /3
19 train	24 behind
19 understand	24 built
19 word	24 collect /10
18 although	24 contract /3
18 answer	24 duty /2
18 artillery	24 fall /4
18 attack	24 history /5
18 body	24 hundred /2
18 bonds	24 indeed
18 cars	24 manufacture /6
18 cut	24 meat /3
18 doubt	24 member /2
18 duty	24 poor /2
18 eye	24 press /4
18 fifty	24 room /3
18 foreign	24 second
18 form	24 store /4
18 fresh	24 support /5
18 girls	24 ten
18 heart	24 touch /5
18 history	24 toward /2
18 largest	24 wait /3
18 leave	23 add /4
18 light	23 admit /5
18 machine	23 art /5
18 merely	23 bad /2
18 news	23 began
18 numbers	23 check /3
18 places	23 claim /3
18 play	23 court /2
18 probably	23 draw /5
18 problem	23 eight
18 rate	23 except
18 recent	23 fear /4
18 required	23 heard
18 rest	23 limit /4
18 run	23 main /2
18 ship	23 marry /4
18 system	23 modern

72,877 [600]

79,084 /1,902

TABLE 3

18 simple  
18 support  
18 town  
18 words  
17 according  
17 announced  
17 authority  
17 car  
17 character  
17 cold  
17 community  
17 control  
17 effect  
17 enforced  
17 everything  
17 experience  
17 father  
17 figures  
17 fine  
17 forward  
17 friend  
17 friends  
17 goods  
17 higher  
17 horses  
17 instead  
17 meat  
17 none  
17 object  
17 parts  
17 passed  
17 permit  
17 president  
17 reach  
17 return  
17 saved  
17 self  
17 speak  
17 strange  
17 suppose  
17 terms  
17 thus  
④ 17 to-day  
17 total  
17 training  
17 trust  
17 turn  
17 win  
17 won't  
16 affairs

TABLE 4

23 motor /6  
23 paper /2  
23 position  
23 problem /2  
23 produce /6  
23 profit /5  
23 purchase /6  
23 shell /3  
23 suggest /6  
23 yes  
22 around  
22 bank /5  
22 decide /4  
22 equal /3  
22 fine /4  
22 fish /7  
22 hero /4  
22 honor /3  
22 imagine /5  
22 kept  
22 list /2  
22 national /2  
22 possess /8  
22 reduce /3  
22 responsible /3  
22 seize /5  
22 sell /4  
22 start /3  
22 step /3  
22 story /2  
22 straight /5  
22 strong /4  
22 suppose /2  
22 tea  
22 term /2  
22 third  
22 ton /3  
22 truth /2  
22 victor /3  
21 addition /3  
21 advance /5  
21 alone  
21 bill /2  
21 chief /3  
21 citizen /2  
21 contain /4  
21 danger /4  
21 declare /4  
21 delay /3  
21 develop /4

TABLE 3

16 avenue  
16 awfully  
16 contract  
16 county  
16 delay  
16 demand  
16 else  
16 feeling  
16 generally  
16 getting  
16 greater  
16 honor  
16 issue  
16 laws  
16 low  
16 main  
16 members  
16 millions  
16 minutes  
16 nations  
16 opportunity  
16 ought  
16 paid  
16 picture  
16 plain  
16 pleased  
16 pleasure  
16 property  
16 proposed  
16 purposes  
16 questions  
16 reasons  
16 recently  
16 sight  
16 social  
16 south  
16 stood  
16 summer  
16 task  
16 therefore  
16 tons  
16 unto  
16 whatever  
16 white  
16 you're  
15 act  
15 address  
15 allies  
15 announcement  
15 attitude

TABLE 4

21 difficult /3  
21 doubt /3  
21 enter /4  
21 equip /3  
21 gain /4  
21 glad  
21 include /4  
21 lack /4  
21 natural /4  
21 nature /2  
21 o'clock  
21 prevent /5  
21 probable /3  
21 progress /3  
21 proper  
21 railroad /3  
21 rule /5  
21 slave /3  
21 spirit /3  
21 task /2  
21 unless  
21 west /3  
20 accept /6  
20 active /3  
20 affair /2  
20 arm /4  
20 arrange /5  
20 capture /3  
20 character /3  
20 construct /4  
20 county /2  
20 determine /4  
20 faith /4  
20 fellow /3  
20 fill /4  
20 gentle /5  
20 gone  
20 maintain /4  
20 mark /4  
20 memory /2  
20 met  
20 milk /2  
20 oil /2  
20 principle /2  
20 range  
20 seek /3  
20 serious /3  
20 stoop /2  
20 strength /2  
20 suit /4

TABLE 3

15 available	20 tax /4
15 bad	20 throw /4
15 bill	20 town /2
15 board	20 win /3
15 consider	20 within
15 due	19 artillery /2
15 efficiency	19 beyond
15 entirely	19 camp /3
15 existence	19 cheap /4
15 failure	19 class /3
15 fellow	19 close /3 adj
15 felt	19 deep /5
15 final	19 foreign /2
15 fire	19 fund /3
15 greatly	19 handle /5
15 increased	19 least
15 industrial	19 liberty /2
15 industry	19 material
15 larger	19 mill /2
15 learned	19 miss /4
15 losses	19 neighbor /4
15 miss	19 paint /6
15 nearly	19 president /2
15 necessity	19 provision /2
15 personal	19 ready
15 please	19 refer /6
15 practical	19 senate /4
15 progress <i>n</i>	19 short /4
15 respectfully	19 sight /3
15 safe	19 similar
15 shells	19 study /4
15 sold	19 teach /5
15 transportation	19 till
15 vessels	19 total /2
15 ways	19 trade /5
15 weeks	19 usual /2
15 west	18 although
15 won	18 aid /3
15 wouldn't	18 board /3
14 across	18 break /2
14 advantage	18 cold /2
14 art	18 community /2
14 average	18 count /5
14 basis	18 critic /7
14 beautiful	18 economy /7
14 certainly	18 explain /4
14 chief	18 fair /4
14 citizens	18 fifty
14 class	18 fly /4
14 command	18 forward /2

75,264 [750] 82,146 /2,374

TABLE 4

14 couldn't	18 fresh
14 danger	18 instruct /5
14 date	(5) 18 light
14 defender	18 news
14 defense	18 nine /5
14 distance	18 offer /5
14 easily	18 opportunity /2
14 entire	18 pure /4
14 equipment	18 quick /5
14 established	18 remark /5
14 everywhere	18 rest
14 fell	18 sacrifice /3
14 followed	18 settle /5
14 immediate	18 shape /4
14 moved	18 social /3
14 names	18 standard /3
14 ones	18 station /3
14 operation	18 type /2
14 patriotism	18 vessel /2
14 period	18 voice /3
14 person	17 attempt /4
14 read <i>past</i>	17 avail /3
14 region	17 avenue /2
14 round	17 bore /4
14 sat	17 conduct /5
14 saving	17 confer /3
14 sit	17 constitute /6
14 sometimes	17 cross /4
14 spirit	17 crowd /4
14 standard	17 date /2
14 step	17 defense /3
14 strike	17 detail /3
14 strong	17 drink /4
14 study	17 everything
14 supplies	17 expense /3
14 throughout	17 expert /2
14 try	17 factory /2
14 various	17 instance /2
14 wait	17 instead
14 wonder	17 invest /4
14 written	17 market /4
13 aid	17 measure /4
13 altogether	17 none
13 armies	17 observe /7
13 arrived	17 pleasure /2
13 black	17 raise /5
13 boy	17 relate /7
13 break	17 ring /3
13 broken	17 section /3
13 chair	17 south /2

75,955 [800] 83,016 /2,537

TABLE 3

13 close *adj*  
 13 condition  
 13 considered  
 13 desire  
 13 drawn  
 13 facts  
 13 fail  
 13 farm  
 13 fear  
 13 foot  
 13 forces  
 13 gives  
 13 ideas  
 13 job  
 13 kindly  
 13 laid  
 13 learn  
 13 looked  
 13 market  
 13 minute  
 13 motor  
 13 neither  
 13 neutral  
 13 non  
 13 orders  
 13 paper  
 13 persons  
 13 press  
 13 pressure  
 13 provide  
 13 provided  
 13 reached  
 13 red  
 13 sacrifice  
 13 satisfactory  
 13 secure  
 13 serious  
 13 seven  
 13 showing  
 13 simply  
 13 single  
 13 size  
 13 table  
 13 thousands  
 13 touch  
 13 trains  
 13 twelve  
 13 village  
 13 weather  
 13 willing

TABLE 4

17 table /3  
 17 test /4  
 17 thus  
 17 vary /3  
 17 weigh /5  
 17 window /2  
 17 won't  
 17 wound /4  
 16 actual /2  
 16 advantage /3  
 16 attitude /2  
 16 beside /2  
 16 clean /5  
 16 cover /4  
 16 custom /5  
 16 depend /6  
 16 distribute /4  
 16 inspire /6  
 16 listen /4  
 16 necessity /2  
 16 north /3  
 16 obtain /3  
 16 ought  
 16 paid  
 16 plant /4  
 16 property  
 16 refuse /4  
 16 region /2  
 16 round /3  
 16 size /3  
 16 stood  
 16 suffer /3  
 16 summer  
 16 unto  
 16 vote /4  
 16 waste /5  
 16 whatever  
 16 white  
 16 wire /5  
 16 witness /5  
 15 allow /5  
 15 baby /3  
 15 bed /2  
 15 belong /4  
 15 broke /2  
 15 consume /4  
 15 cry /4  
 15 democrat /3  
 15 die /3  
 15 due

TABLE 3

13 wise  
 13 working  
 12 addition  
 12 advance  
 12 apparently  
 12 attacks  
 12 carbon  
 12 causes  
 12 changed  
 12 claim  
 12 confidence  
 12 considerable  
 12 cooperation  
 12 correspondent  
 12 cream  
 12 declared  
 12 demanded  
 12 difference  
 12 direct  
 12 driven  
 12 excellent  
 12 expect  
 12 experts  
 12 favor  
 12 fish  
 12 follow  
 12 forget  
 12 gets  
 12 gold  
 12 grown  
 12 horse  
 12 immediately  
 12 largely  
 12 late  
 12 later  
 12 liberty  
 12 majority  
 12 married  
 12 measure  
 12 mere  
 12 middle  
 12 mile  
 12 native  
 12 natural  
 12 needed  
 12 nobody  
 12 normal  
 12 officials  
 12 ordinary  
 12 organization

TABLE 4

15 efficiency  
 15 felt  
 15 firm  
 15 gather /5  
 15 gold /2  
 15 hill /4  
 15 individual /3  
 15 influence /4  
 15 inquire /4  
 15 insist /5  
 15 involve /3  
 15 job /2  
 15 kill /4  
 15 lay /4  
 15 native /2  
 15 neutral /2  
 15 practise /3  
 15 proceed /6  
 15 promise /4  
 15 rapid /4  
 15 resource /2  
 15 sign /3  
 15 sold  
 15 stay /3  
 15 stone /2  
 15 stop /3  
 15 sweet /3  
 15 treat /6  
 15 wife /2  
 15 won  
 15 worse /2  
 14 accomplish /5  
 14 across  
 14 airplane /2  
 14 average  
 14 black /2  
 14 burn /3  
 14 comfort /3  
 14 conclude /6  
 14 contribute /5  
 14 defeat /2  
 14 distance  
 14 division /3  
 14 door /2  
 14 dream /4  
 14 enclose /3  
 14 engine /2  
 14 everywhere  
 14 examine /4  
 14 excel /3

TABLE 3

12 peoples  
12 placed  
12 possibility  
12 prevent  
12 principle  
12 quickly  
12 reported  
12 ring  
12 section  
12 shipment  
12 shown  
12 sitting  
12 speaking  
12 spent  
12 stage  
12 station  
12 stop  
12 suit  
12 taught  
12 telling  
12 tonight  
12 type  
12 unknown  
12 using  
12 usual  
12 voice  
12 wants  
12 works  
12 yourself  
11 abroad  
11 acts  
11 afraid  
11 agents  
11 appeared  
11 approximately  
11 bear  
11 became  
11 blue  
11 book  
11 bore  
11 bought  
11 bread  
11 busy  
11 campaign  
11 caught  
11 construction  
11 corn  
11 costs  
11 credit  
11 daily

TABLE 4

14 extreme /2  
14 fast /3  
14 feature /3  
14 fell  
14 fit /4  
14 forget /3  
14 improve /5  
14 introduce /3  
14 mistake /2  
14 moral /5  
14 mystery /4  
14 period  
14 quarter /2  
14 read past  
14 ride /4  
14 rush /3  
14 sat  
14 satisfactory /2  
14 single /2  
14 sometimes  
14 substitute /3  
14 tomorrow /2  
14 travel /6  
14 weather /2  
14 winter /3  
14 written  
14 yard /2  
13 achieve /4  
13 admire /6  
13 agent /2  
13 aim /3  
13 altogether  
13 apparent /2  
13 approximate /3  
13 article /2  
13 assure /5  
13 brother /3  
13 campaign /2  
13 complain /5  
13 convince /3  
13 copy /3  
13 corporation /2  
13 degree /2  
13 dwell /8  
13 earth /2  
13 engineer /3  
13 estimate /3  
13 event /3  
13 exceed /4  
13 finish /3

TABLE 3

11 deep  
11 delivered  
11 developed  
11 earth  
11 election  
11 enclosed  
11 engaged  
11 engine  
11 executive  
11 existing  
11 expected  
11 express  
11 expressed  
11 fair  
11 fall  
11 fast  
11 filled  
11 finally  
11 follows  
11 forth  
11 freedom  
11 fund  
11 gained  
11 giving  
11 goes  
11 greatest  
11 happen  
11 herself  
11 holding  
11 I'd  
11 immense  
11 influence  
11 instance  
11 involved  
11 isn't  
11 judgment  
11 lack  
11 latter  
11 longer  
11 mental  
11 mill  
11 move  
11 north  
11 offices  
11 pictures  
11 police  
11 prices  
11 private  
11 pure  
11 quality

13 flag /4  
13 foot  
13 guest /2  
13 income /3  
13 indicate /7  
13 king /2  
13 laid  
13 loyal /3  
13 majority /2  
13 mass /3  
13 master /2  
13 mental /2  
13 mention /2  
13 neither  
13 non  
13 occasion /4  
13 occur /5  
13 ordinary /2  
13 page /2  
13 present /3 v  
13 pressure  
13 previous /2  
13 prison /3  
13 pull /5  
13 quantity /2  
13 railway /2  
13 recognize /3  
13 red  
13 share /3  
13 sound /5  
13 speech /2  
13 terrible /2  
13 twelve  
13 universe /5  
13 utter /4  
13 vast /3  
13 village  
13 wide /2  
13 wise  
12 absolute /3  
12 amend /6  
12 billion /2  
12 blue /2  
12 bread /2  
12 busy /2  
12 carbon  
12 close /4 v  
12 confidence  
12 cooperation  
12 corn /2

TABLE 3

II railroads  
II responsible  
II running  
II seeing  
II serve  
II shape  
II shipping  
II spring  
II staff  
II started  
II stay  
II stone  
II straight  
II striking  
II successful  
II sum  
II surely  
II sweet  
II tomorrow  
II trade  
II trying  
II wasn't  
II wide  
II wife  
II wild  
II winter  
II worse

78,633 [1,027]

TABLE 4

12 cream  
12 daily /2  
12 devote /3  
12 disloyal  
12 distinct /4  
12 district /2  
12 driven  
12 east /3  
12 exercise /3  
12 floor /3  
12 fright /5  
12 furnish /3  
12 hate /3  
12 heaven /2  
12 hence /2  
12 highway /3  
12 honest /3  
12 ill /3  
12 incident /3  
12 insure /4  
12 manner /2  
12 march /3  
12 middle  
12 nobody  
12 normal  
12 physical /2  
12 program /2  
12 protect /3  
12 record /5  
12 river /2  
12 roll /5  
12 rub /3  
12 seat /3  
12 sentiment /3  
12 shoulder /2  
12 smile /4  
12 speed /5  
12 spent  
12 spoke /2  
12 square /3  
12 stage  
12 submarine /2  
12 taught  
12 tend /8  
12 tire /3  
12 tonight  
12 tree /2  
12 trench /2  
12 union /2  
12 unknown

[1,050] 86,461 /3,234

TABLE 4

12 visit  
12 wage /4  
12 walk /4  
12 warm /5  
12 weak /6  
12 wood /4  
II abroad  
II accompany /4  
II affect /5  
II afford /3  
II afraid  
II became  
II bought  
II caught  
II cease /3  
II chapter /2  
II choice /2  
II color /4  
II consist /5  
II contrast /2  
II council /2  
II credit  
II death /2  
II definite /2  
⑥ II dispatch /3  
II drop /4  
II educate /4  
II election  
II engaged  
II especial /2  
II evidence /2  
II evident /2  
II exact /3  
II extend /2  
II fix /4  
II forth  
II garden /3  
II generate /4  
II glory /4  
II hat /2  
II health /3  
II hurry /3  
II ideal /3  
II immense  
II incline /3  
II institute /4  
II instrument /3  
II latter  
II launch /3  
II lesson /2

[1,100] 87,017 /3,368

TABLE 4

II manage /5	occur in any case, or abnormally enhance in importance by the same conditions. The effect on the syllable or sound data is insignificant.
II minor /3	
II mount /4	
II nice /3	
II notice /4	
II oblige /2	
II police	
II potato /2	
II private	
II pursue /5	
II quality	
II race /3	
II raid /4	
II rank /2	
II remove /3	
II reserve /5	
II retailer /2	
II sail /5	
II skill /2	
II spring	
II staff	
II stock /2	
II struggle /3	
II succeed /4	
II sum	
II summon /4	
II surprise /3	
II territory /3	
II wagon /2	
II wild	
II worry /3	

[x,x3x] 87,358 /3,453

Note From a dozen to 20 "war words," such as *troops guns offensive bombardment artillery allies shells vessels patriotism neutral attacks submarine trench*, owe their presence in these tables to the fact that the material for analysis (Table 1, page 8) was selected during the spring of 1918, and that about half of that material was of an immediately current nature inevitably influenced by war conditions. Analysis of the original detailed data readily identifies and measures the extent of this influence. A somewhat lesser number of words such as *war peace military gun soldiers fight*, which would hav

TABLE 5

2,120 a
30 able
153 about
25 above
11 abroad
17 according
20 account
14 across
15 act
28 action
11 acts
12 addition
15 address
24 administration
12 advance
14 advantage
16 affairs
11 afraid
107 after
31 afternoon
62 again
73 against
19 age
11 agents
36 ago
13 aid
23 air
466 all
15 allies
37 almost
21 alone
28 along
27 already
69 also
18 although
13 altogether
62 always
75 am
46 among
35 amount
330 an
3,280 and
17 announced
15 announcement
58 another
18 answer
210 any
30 anything
12 apparently
11 appeared

TABLE 6

2,120 a
30 able
153 about
15 above
11 abroad
12 absolute /3
20 accept /6
11 accompany /4
14 accomplish /5
24 accord /4
28 account /5
13 achieve /4
14 across
70 act /8
20 active /3
16 actual /2
23 add /4
21 addition /3
24 address /4
32 administer /6
13 admire /6
23 admit /5
21 advance /5
16 advantage /3
20 affair /2
11 affect /5
11 afford /3
11 afraid
117 after /3
33 afternoon /3
62 again
73 against
24 age /3
13 agent /2
36 ago
25 agree /7
18 aid /3
13 aim /3
25 air /3
14 airplane /2
467 all /2
24 ally /3
15 allow /5
37 almost
21 alone
28 along
27 already
69 also
18 although
13 altogether
13 altogether

TABLE 5

11 approximately
542 are
13 armies
43 army
22 around
13 arrived
14 art
18 artillery
782 as
30 ask
36 asked
585 at
18 attack
12 attacks
19 attention
15 attitude
17 authority
15 available
16 avenue
14 average
58 away
16 awfully
75 back
15 bad
14 basis
38 battle
846 be
11 bear
14 beautiful
11 became
108 because
30 become
③ 328 been
139 before
23 began
27 beginning
24 behind
108 being
40 believe
52 best
32 better
60 between
19 beyond
50 big
15 bill
13 black
11 blue
15 board
18 body
19 bombardment
62 always
75 am
12 amend /6
46 among
37 amount /3
330 an
3,280 and
38 announce /6
58 another
28 answer /4
210 any
30 anything
13 approximate /3
549 are /2
20 arm /4
57 army /3
22 around
20 arrange /5
25 arrive /4
23 art /5
13 article /2
19 artillery
782 as
75 ask /4
13 assure /5
585 at
38 attack /4
17 attempt /4
30 attend /6
16 attitude /2
27 authority /2
17 avail /3
17 avenue /2
14 average
58 away
24 awful /2
15 baby /3
83 back /5
23 bad /2
22 bank /5
33 base /6
43 battle /3
956 be /3
27 bear /5
24 beauty /3
11 became
108 because

TABLE 5

18 bonds	39 become /3
11 book	15 bed /2
34 books	329 been
11 bore	139 before
45 both	23 began
11 bought	41 begin /4
13 boy	24 behind
28 boys	59 believe /5
11 bread	15 belong /4
13 break	16 beside /2
19 bring	52 best
13 broken	32 better
33 brought	60 between
25 building	19 beyond
24 built	54 big /3
91 business	21 bill /2
11 busy	12 billion /2
504 but	14 black /2
27 buy	12 blue /2
600 by	18 board /3
40 call	29 body /4
32 called	31 bombard /5
71 came	25 bond /3
11 campaign	45 book /2
197 can	17 bore /4
58 cannot	45 both
21 can't	11 bought
33 capital	43 boy /4
17 car	12 bread /2
12 carbon	18 break /2
23 care	31 bring /3
21 carried	15 broke /2
23 carry	13 brother /3
18 cars	33 brought
52 case	46 build /7
19 cases	24 built
11 caught	14 burn /3
32 cause	91 business
12 causes	12 busy /2
39 cent	504 but
30 cents	36 buy /5
34 certain	600 by
14 certainly	85 call /6
13 chair	71 came
21 change	19 camp /3
12 changed	13 campaign /2
17 character	277 can /4
23 charge	41 capital /6
19 check	20 capture /3
14 chief	35 car /2

TABLE 6

39 become /3	24 child
15 bed /2	35 children
329 been	14 citizens
139 before	44 city
23 began	12 claim
41 begin /4	14 class
24 behind	23 clear
59 believe /5	13 close adj
15 belong /4	33 coal
16 beside /2	17 cold
52 best	123 come
32 better	23 comes
60 between	23 coming
19 beyond	14 command
54 big /3	29 committee
21 bill /2	29 common
12 billion /2	17 community
14 black /2	23 company
12 blue /2	28 complete
18 board /3	13 condition
29 body /4	38 conditions
31 bombard /5	12 confidence
25 bond /3	15 consider
45 book /2	12 considerable
17 bore /4	13 considered
45 both	11 construction
11 bought	20 continue
43 boy /4	16 contract
12 bread /2	17 control
18 break /2	12 cooperation
31 bring /3	11 corn
15 broke /2	12 correspondent
13 brother /3	21 cost
33 brought	11 costs
46 build /7	133 could
24 built	14 couldn't
14 burn /3	92 country
91 business	16 county
12 busy /2	37 course
504 but	22 court
36 buy /5	12 cream
600 by	11 credit
85 call /6	18 cut
71 came	11 daily
19 camp /3	14 danger
13 campaign /2	14 date
277 can /4	101 day
41 capital /6	70 days
20 capture /3	48 dear
35 car /2	12 declared

TABLE 5

24 child	12 carbon
35 children	48 care /9
14 citizens	55 carry /4
44 city	71 case /2
12 claim	11 caught
14 class	57 cause /4
23 clear	11 cease /3
13 close adj	69 cent /2
33 coal	50 certain /3
17 cold	26 chair /5
123 come	39 change /4
23 comes	11 chapter /2
23 coming	20 character /3
14 command	42 charge /4
29 committee	19 cheap /4
29 common	23 check /3
17 community	21 chief /3
23 company	39 child /4
28 complete	38 children /2
13 condition	11 choice /2
38 conditions	21 citizen /2
12 confidence	51 city /4
15 consider	23 claim /3
12 considerable	19 class /3
13 considered	16 clean /5
11 construction	38 clear /7
20 continue	12 close /4 v
16 contract	19 close /3 a
17 control	33 coal
12 cooperation	18 cold /2
11 corn	24 collect /10
12 correspondent	11 color /4
21 cost	171 come /4
11 costs	14 comfort /3
133 could	26 command /9
14 couldn't	48 commit /6
92 country	31 common /3
16 county	18 community /2
37 course	30 company /3
22 court	13 complain /5
12 cream	39 complete /5
11 credit	25 concern /4
18 cut	14 conclude /6
11 daily	51 condition /2
14 danger	17 conduct /5
14 date	17 confer /3
101 day	12 confidence
70 days	52 consider /8
48 dear	11 consist /5
12 declared	17 constitute /6

TABLE 5

11 deep	20 construct / 4
14 defender	15 consume / 4
14 defense	21 contain / 4
16 delay	49 continue / 11
11 delivered	24 contract / 3
16 demand	11 contrast / 2
12 demanded	14 contribute / 5
22 department	32 control / 5
13 desire	13 convince / 3
11 developed	12 cooperation
100 did	13 copy / 3
23 didn't	12 corn / 2
12 difference	13 corporation / 2
25 different	25 correspond / 5
30 dinner	37 cost / 4
12 direct	147 could / 2
14 distance	11 council / 2
203 do	18 count / 5
· 53 does	111 country / 5
36 doing	20 county / 2
22 dollars	38 course / 2
40 done	23 court / 2
67 don't	16 cover / 4
18 doubt	12 cream
95 down	11 credit
13 drawn	18 critic / 7
24 drive	17 cross / 4
12 driven	17 crowd / 4
15 due	15 cry / 4
41 during	16 custom / 5
18 duty	29 cut / 4
63 each	12 daily / 2
34 early	21 danger / 4
11 earth	17 date / 2
14 easily	175 day / 4
19 easy	29 deal / 6
17 effect	59 dear / 5
15 efficiency	11 death / 2
21 effort	22 decide / 4
23 eight	21 declare / 4
36 either	19 deep / 5
11 election	14 defeat / 2
24 electric	27 defend / 7
16 else	17 defense / 3
11 enclosed	11 definite / 2
33 end	13 degree / 2
31 enemy	21 delay / 3
17 enforced	26 deliver / 5
11 engaged	38 demand / 4
11 engine	15 democrat / 3

TABLE 6

20 construct / 4	44 enough
15 consume / 4	14 entire
21 contain / 4	15 entirely
49 continue / 11	14 equipment
24 contract / 3	14 established
11 contrast / 2	94 even
14 contribute / 5	21 evening
32 control / 5	51 ever
13 convince / 3	124 every
12 cooperation	17 everything
13 copy / 3	14 everywhere
12 corn / 2	12 excellent
13 corporation / 2	23 except
25 correspond / 5	11 executive
37 cost / 4	15 existence
147 could / 2	11 existing
11 council / 2	12 expect
18 count / 5	11 expected
111 country / 5	17 experience
20 county / 2	12 experts
38 course / 2	11 express
23 court / 2	11 expressed
16 cover / 4	18 eye
12 cream	33 eyes
11 credit	30 face
18 critic / 7	58 fact
17 cross / 4	13 facts
17 crowd / 4	13 fail
15 cry / 4	15 failure
16 custom / 5	11 fair
29 cut / 4	11 fall
12 daily / 2	22 family
21 danger / 4	63 far
17 date / 2	13 farm
175 day / 4	11 fast
29 deal / 6	17 father
59 dear / 5	12 favor
11 death / 2	13 fear
22 decide / 4	32 feel
21 declare / 4	16 feeling
19 deep / 5	30 feet
14 defeat / 2	14 fell
27 defend / 7	15 fellow
17 defense / 3	15 felt
11 definite / 2	54 few
13 degree / 2	20 field
21 delay / 3	18 fifty
26 deliver / 5	21 fight
38 demand / 4	40 fighting
15 democrat / 3	17 figures

TABLE 5

26 department / 3	16 depend / 6
16 desire / 6	32 desire / 7
34 destroy / 7	17 detail / 3
20 determine / 4	21 develop / 4
21 develop / 4	12 devote / 3
123 did / 2	15 die / 3
46 differ / 7	21 difficult / 3
30 dinner	42 direct / 8
26 discover / 6	12 disloyal / 3
12 disloyal / 3	71 dispatch / 3
14 distance	12 distinct / 4
12 distinct / 4	16 distribute / 4
16 distribute / 4	12 district / 2
14 division / 3	14 division / 3
239 do / 2	63 does / 2
63 does / 2	30 dollar / 3
40 done	67 don't
67 don't	14 door / 2
21 doubt / 3	21 draw / 5
98 down / 3	23 draw / 5
23 draw / 5	14 dream / 4
14 dream / 4	17 drink / 4
37 drive / 4	37 drive / 4
12 driven	11 drop / 4
11 drop / 4	15 due
15 due	41 during
41 during	24 duty / 2
24 duty / 2	13 dwell / 8
13 dwell / 8	63 each
63 each	41 early / 3
41 early / 3	13 earth / 2
13 earth / 2	40 ease / 5
40 ease / 5	12 east / 3
12 east / 3	26 eat / 5
26 eat / 5	18 economy / 7
18 economy / 7	11 educate / 4
11 educate / 4	31 effect / 5
31 effect / 5	15 efficiency

TABLE 5

11 filled	29 effort /2
15 final	23 eight
11 finally	36 either
49 find	11 election
17 fine	28 electric /2
15 fire	25 else /3
131 first	30 employ /7
12 fish	14 enclose /3
49 five	50 end /5
25 flour	42 enemy /3
12 follow	35 enforce /4
14 followed	11 engaged
21 following	14 engine /2
11 follows	13 engineer /3
53 food	44 enough
13 foot	21 enter /4
1,035 for	29 entire /2
23 force	22 equal /3
13 forces	21 equip /3
18 foreign	11 especial /2
12 forget	26 establish /5
18 form	13 estimate /3
11 forth	94 even
33 forty	25 evening /3
17 forward	13 event /3
55 found	51 ever
35 four	124 every
32 free	17 everything
11 freedom	14 everywhere
18 fresh	11 evidence /2
17 friend	11 evident /2
17 friends	11 exact /3
433 from	14 examine /4
46 front	13 exceed /4
35 full	14 excel /3
11 fund	23 except
29 further	27 execute /8
29 future	12 exercise /3
11 gained	38 exist /6
36 gave	29 expect /6
37 general	17 expense /3
16 generally	25 experience /3
89 get	17 expert /2
12 gets	18 explain /4
16 getting	36 express /6
32 girl	11 extend /2
18 girls	14 extreme /2
57 give	54 eye /3
46 given	41 face /3
13 gives	85 fact /4

TABLE 6

11 giving	17 factory /2
21 glad	45 fail /6
73 go	18 fair /4
11 goes	20 faith /4
60 going	24 fall /4
12 gold	26 family /3
20 gone	64 far /2
106 good	36 farm /6
17 goods	14 fast /3
50 got	26 father /3
57 government	25 favor /6
134 great	23 fear /4
16 greater	14 feature /3
11 greatest	51 feel /3
15 greatly	30 feet
23 ground	14 fell
12 grown	20 fellow /3
44 gun	15 felt
23 guns	56 few /2
411 had	30 field /2
58 half	18 fifty
46 hand	62 fight /3
32 hands	29 figure /3
11 happen	20 fill /4
19 happy	27 final /3
21 hard	57 find /3
390 has	22 fine /4
617 have	13 finish /3
31 having	32 fire /4
680 he	15 firm /5
27 head	131 first
25 hear	22 fish /7
23 heard	14 fit /4
18 heart	49 five
21 heavy	11 fix /4
29 held	13 flag /4
25 help	12 floor /3
222 her	26 flour /2
107 here	18 fly /4
11 herself	58 follow /4
46 high	55 food /2
17 higher	13 foot
234 him	1,035 for
51 himself	49 force /6
517 his	19 foreign /2
18 history	14 forget /3
22 hold	54 form /8
11 holding	11 forth
63 home	37 forty /3
16 honor	18 forward /2

TABLE 5

11 giving	17 factory /2
21 glad	45 fail /6
73 go	18 fair /4
11 goes	20 faith /4
60 going	24 fall /4
12 gold	26 family /3
20 gone	64 far /2
106 good	36 farm /6
17 goods	14 fast /3
50 got	26 father /3
57 government	25 favor /6
134 great	23 fear /4
16 greater	14 feature /3
11 greatest	51 feel /3
15 greatly	30 feet
23 ground	14 fell
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44 gun	15 felt
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46 hand	62 fight /3
32 hands	29 figure /3
11 happen	20 fill /4
19 happy	27 final /3
21 hard	57 find /3
390 has	22 fine /4
617 have	13 finish /3
31 having	32 fire /4
680 he	15 firm /5
27 head	131 first
25 hear	22 fish /7
23 heard	14 fit /4
18 heart	49 five
21 heavy	11 fix /4
29 held	13 flag /4
25 help	12 floor /3
222 her	26 flour /2
107 here	18 fly /4
11 herself	58 follow /4
46 high	55 food /2
17 higher	13 foot
234 him	1,035 for
51 himself	49 force /6
517 his	19 foreign /2
18 history	14 forget /3
22 hold	54 form /8
11 holding	11 forth
63 home	37 forty /3
16 honor	18 forward /2

## Words

TABLE 5	TABLE 6	TABLE 5	TABLE 6
30 hope	56 found /2	13 kindly	31 hear /3
12 horse	41 four /3	30 knew	23 heard
17 horses	45 free /3	102 know	26 heart /7
26 hour	18 fresh	24 knowledge	12 heaven /2
26 hours	39 friend /4	33 known	33 heavy /5
53 house	12 fright /5	30 knows	29 held
124 how	433 from	39 labor	36 help /5
22 however	49 front /3	11 lack	12 hence /2
19 human	47 full /3	13 laid	234 her /3
21 hundred	19 fund /3	25 land	110 here /2
1,155 I	12 furnish /3	39 large	22 hero /4
11 I'd	29 further	12 largely	81 high /4
29 idea	29 future	15 larger	12 highway /3
13 ideas	21 gain /4	18 largest	15 hill /4
263 if	11 garden /3	77 last	285 him /2
20 I'll	15 gather /5	12 late	517 his
30 I'm	36 gave	12 later	24 history /5
14 immediate	55 general /4	11 latter	39 hold /5
12 immediately	11 generate /4	34 law	71 home /3
11 immense	20 gentle /5	16 laws	12 honest /3
24 important	117 get /3	13 learn	22 honor /3
26 impossible	50 girl /2	15 learned	50 hope /8
2,116 in	127 give /4	19 least	29 horse /2
15 increased	21 glad	18 leave	55 hour /4
24 indeed	11 glory /4	48 left	66 house /3
15 industrial	144 go /3	53 less	146 how /2
15 industry	15 gold /2	51 let	26 human /4
11 influence	20 gone	36 letter	24 hundred /2
24 information	125 good /3	20 letters	11 hurry /3
11 instance	50 got	12 liberty	1,236 I /5
17 instead	78 govern /9	89 life	42 idea /2
48 interest	178 great /5	18 light	11 ideal /3
19 interesting	31 ground /2	113 like	263 if
166 into	29 grow /5	52 line	12 ill /3
11 involved	13 guest /2	27 lines	22 imagine /5
1,213 is	72 gun /3	21 list	26 immediate /2
11 isn't	414 had /2	111 little	11 immense
16 issue	58 half	20 live v	33 import /3
1,216 it	81 hand /4	22 living	26 impossible
208 its	19 handle /5	25 loan	14 improve /5
38 it's	31 happen /5	94 long	2,116 in
26 itself	29 happy /5	11 longer	12 incident /3
20 I've	31 hard /7	30 look	11 incline /3
13 job	390 has	13 looked	21 include /4
11 judgment	11 hat /2	23 looking	13 income /3
86 just	12 hate /3	20 loss	40 increase /4
20 justice	658 have /3	15 losses	24 indeed
32 keep	687 he /3	28 lost	13 indicate /7
22 kept	38 head /7	32 love	15 individual /3
31 kind	11 health /3	16 low	39 industry /4

TABLE 5

18 machine	15 influence /4
170 made	36 inform /4
16 main	15 inquire /4
12 majority	15 insist /5
105 make	16 inspire /6
26 makes	17 instance /2
32 making	17 instead
156 man	11 institute /4
104 many	18 instruct /5
13 market	11 instrument /3
12 married	12 insure /4
19 material	82 interest /4
71 matter	166 into
160 may	14 introduce /3
257 me	17 invest /4
23 mean	15 involve /3
46 means	1,224 is /2
12 measure	34 issue /4
17 meat	1,488 it /4
19 meet	15 job /2
20 meeting	25 judge /5
16 members	110 just /4
19 memory	45 keep /5
164 men	22 kept
11 mental	15 kill /4
12 mere	57 kind /4
18 merely	13 king /2
20 met	30 knew
20 method	171 know /4
12 middle	25 knowledge /2
77 might	52 labor /6
12 mile	21 lack /4
29 miles	12 laid
51 military	36 land /4
19 milk	84 large /4
11 mill	85 last /4
22 million	34 late /4
16 millions	11 latter
39 mind	11 launch /3
13 minute	57 law /6
16 minutes	15 lay /4
15 miss	28 lead /5
23 modern	30 learn /3
27 moment	19 least
60 money	27 leave /4
24 month	48 left
32 months	56 less /4
210 more	11 lesson /2
45 morning	51 let
105 most	56 letter /2

TABLE 6

20 mother	19 liberty /2
13 motor	90 life /2
11 move	(5) 18 light
14 moved	129 like /7
104 much	23 limit /4
163 must	79 line /2
296 my	22 list /2
33 myself	16 listen /4
40 name	112 little /2
14 names	58 live /4
37 nation	34 loan /2
21 national	110 long /7
16 nations	69 look /4
12 native	63 loss /3
12 natural	52 love /7
20 nature	25 low /5
23 near	13 loyal /3
15 nearly	30 machine /3
35 necessary	170 made
15 necessity	.23 main /2
32 need	20 maintain /4
12 needed	13 majority /2
21 needs	165 make /6
13 neither	167 man /5
13 neutral	11 manage /5
101 never	12 manner /2
99 new	24 manufacture /6
18 news	104 many
44 next	12 march /3
46 night	20 mark /4
321 no	17 market /4
12 nobody	23 marry /4
13 non	13 mass /3
17 none	13 master /2
28 nor	19 material
12 normal	76 matter /2
11 north	162 may
589 not	257 me
24 note	72 mean /4
61 nothing	17 measure /4
210 now	24 meat /3
32 number	44 meet /4
18 numbers	24 member /2
17 object	20 memory /2
21 o'clock	168 men /2
3,998 of	13 mental /2
43 off	13 mention /2
22 offensive	30 mere /2
27 office	20 met
23 officers	26 method /2

TABLE 5

19 liberty /2
90 life /2
(5) 18 light
129 like /7
23 limit /4
79 line /2
22 list /2
16 listen /4
112 little /2
58 live /4
34 loan /2
110 long /7
69 look /4
63 loss /3
52 love /7
25 low /5
13 loyal /3
30 machine /3
170 made
.23 main /2
20 maintain /4
13 majority /2
165 make /6
167 man /5
11 manage /5
12 manner /2
24 manufacture /6
104 many
12 march /3
20 mark /4
17 market /4
23 marry /4
13 mass /3
13 master /2
19 material
76 matter /2
162 may
257 me
72 mean /4
17 measure /4
24 meat /3
44 meet /4
24 member /2
20 memory /2
168 men /2
13 mental /2
13 mention /2
30 mere /2
20 met
26 method /2

TABLE 6

TABLE 5

11 offices	12 middle
22 official	84 might /5
12 officials	42 mile /3
27 often	51 military
53 oh	20 milk /2
19 oil	19 mill /2
75 old	42 million /4
643 on	44 mind /3
59 once	25 mine /5
368 one	11 minor /3
14 ones	39 minute /3
189 only	19 miss /4
31 open	14 mistake /2
14 operation	23 modern
24 opinion	33 moment /4
16 opportunity	60 money
458 or	62 month /4
48 order	14 moral /5
13 orders	210 more
12 ordinary	46 morning /2
12 organization	107 most /2
169 other	28 mother /3
25 others	23 motor /6
16 ought	11 mount /4
331 our	44 move /6
20 ourselves	104 much
203 out	168 must /2
153 over	329 my /2
75 own	14 mystery /4
16 paid	68 name /5
13 paper	59 nation /3
79 part	22 national /2
19 particular	15 native /2
17 parts	21 natural /4
27 party	21 nature /2
20 pass	52 near /4
17 passed	38 necessary /3
29 past	16 necessity /2
14 patriotism	69 need /6
43 pay	19 neighbor /4
59 peace	13 neither
163 people	15 neutral /2
12 peoples	101 never
60 per	104 new /4
21 perfect	18 news
26 perhaps	44 next
14 period	11 nice /3
17 permit	49 night /2
19 permitted	18 nine /5
14 person	321 no

TABLE 6

15 personal	12 nobody
13 persons	13 non
16 picture	17 none
11 pictures	28 nor
52 place	12 normal
12 placed	16 north /3
18 places	589 not
16 plain	34 note /5
22 plan	61 nothing
19 plans	11 notice /4
18 play	210 now
15 please	53 number /4
16 pleased	39 object /10
16 pleasure	11 oblige /2
32 point	17 observe /7
11 police	16 obtain /3
23 political	13 occasion /4
23 poor	13 occur /5
23 position	21 o'clock
12 possibility	3,998 of
54 possible	43 off
22 pound	30 offense /3
26 pounds	18 offer /5
57 power	38 office /2
15 practical	34 officer /3
61 present <i>a &amp; n</i>	37 official /3
17 president	27 often
13 press	53 oh
13 pressure	20 oil /2
23 pretty	84 old /4
12 prevent	643 on
30 price	59 once
11 prices	389 onc /3
12 principle	189 only
11 private	49 open /6
18 probably	43 operate /9
18 problem	28 opinion /2
21 products	18 opportunity /2
15 progress	458 or
21 proper	71 order /4
16 property	13 ordinary /2
16 proposed	36 organize /4
13 provide	194 other /2
13 provided	16 ought
68 public	357 our /3
11 pure	206 out /3
42 purpose	153 over
16 purposes	90 own /6
63 put	26 pack /7
11 quality	13 page /2

TABLE 5

15 personal	12 nobody
13 persons	13 non
16 picture	17 none
11 pictures	28 nor
52 place	12 normal
12 placed	16 north /3
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42 purpose	153 over
16 purposes	90 own /6
63 put	26 pack /7
11 quality	13 page /2

TABLE 6

TABLE 5

23 question	16 paid
16 questions	19 paint /6
12 quickly	23 paper /2
27 quite	97 part /3
11 railroads	29 particular /3
20 range	36 party /3
18 rate	50 pass /4
32 rather	29 past
17 reach	27 patriot /6
13 reached	67 pay /6
24 read <i>present</i>	62 peace /3
14 read <i>past</i>	180 people /3
19 ready	60 per
31 real	35 perfect /4
33 really	26 perhaps
23 reason	14 period
16 reasons	48 permit /5
23 received	48 person /6
18 recent	12 physical /2
16 recently	30 picture /3
13 red	85 place /4
20 regard	27 plain /3
14 region	48 plan /4
22 remember	16 plant /4
19 report	32 play /5
12 reported	33 please /3
22 reports	17 pleasure /2
18 required	48 point /3
15 respectfully	11 police
11 responsible	38 politic /6
18 rest	24 poor /2
28 result	23 position
17 return	22 possess /8
91 right	72 possible /4
12 ring	11 potato /2
21 road	49 pound /3
21 room	68 power /3
14 round	25 practical /2
18 run	15 practice /3
11 running	25 prepare /4
13 sacrifice	68 present /3a & n
15 safe	13 present /3v
161 said	19 president /2
67 same	24 press /4
14 sat	13 pressure
13 satisfactory	27 pretty /4
33 save	21 prevent /5
17 saved	13 previous /2
14 saving	45 price /4
41 saw	20 principle /2

TABLE 6

111 say	13 prison /3
27 saying	11 private
52 says	21 probab'e /3
23 school	23 problem /2
25 sea	15 proceed /6
24 second	23 produce /6
12 section	29 product /4
13 secure	23 profit /5
103 see	12 program /2
11 seeing	21 progress /3
19 seem	15 promise /4
26 seemed	21 proper
30 seems	16 property
36 seen	32 propose /5
17 self	12 protect /3
28 send	30 provide /4
19 sense	19 provision /2
28 sent	69 public /2
13 serious	13 pull /5
11 serve	23 purchase /6
48 service	18 pure /4
48 set	58 purpose /2
13 seven	11 pursue /5
37 several	67 put /3
120 shall	11 quality
11 shape	13 quantity /2
188 she	14 quarter /2
15 shells	44 question /4
18 ship	18 quick /5
12 shipment	27 quite
11 shipping	11 race /3
20 ships	11 raid /4
118 should	21 railroad /3
31 show	13 railway /2
13 showing	17 raise /5
12 shown	11 rank /2
43 side	15 rapid /4
16 sight	20 range
19 similar	27 rate /3
18 simple	32 rather
13 simply	37 reach /4
52 since	46 read /5 v
13 single	14 read <i>past</i>
14 sit	19 ready
12 sitting	72 real /4
40 situation	25 realize /4
37 six	48 reason /6
13 size	36 receive /4
46 small	34 recent /2
300 so	13 recognize /3

TABLE 6

TABLE 5

16 social	12 record /5
15 sold	13 red
27 soldiers	22 reduce /3
152 some	19 refer /6
40 something	16 refuse /4
14 sometimes	35 regard /5
42 soon	16 region /2
20 sort	17 relate /7
16 south	25 remain /5
17 speak	18 remark /5
12 speaking	37 remember /4
26 special	11 remove /3
12 spent	59 report /6
14 spirit	28 represent /7
11 spring	46 require /5
11 staff	11 reserve /5
12 stage	15 resource /2
43 stand	40 respect /8
14 standard	22 responsible /3
11 started	18 rest
36 state	44 result /4
38 statement	11 retailer /2
12 station	33 return /4
11 stay	14 ride /4
48 steel	110 right /6
14 step	17 ring /3
58 still	12 river /2
11 stone	31 road /2
16 stood	12 roll /5
19 stooped	24 room /3
12 stop	16 round /3
20 story	12 rub /3
11 straight	21 rule /5
17 strange	31 run /4
21 street	14 rush /3
19 strength	18 sacrifice /3
14 strike	28 safe /4
11 striking	161 said
14 strong	11 sail /5
14 study	67 same
32 subject	14 sat
19 success	14 satisfactory /2
11 successful	64 save /3
132 such	41 saw
12 suit	191 say /4
11 sum	33 school /4
16 summer	31 sea /2
14 supplies	12 seat /3
19 supply	24 second
18 support	17 section /3

TABLE 6

12 record /5	17 suppose
13 red	21 sure
22 reduce /3	11 surely
19 refer /6	11 sweet
16 refuse /4	19 system
35 regard /5	13 table
16 region /2	86 take
17 relate /7	46 taken
25 remain /5	22 taking
18 remark /5	20 talk
37 remember /4	16 task
11 remove /3	12 taught
59 report /6	22 tea
28 represent /7	51 tell
46 require /5	12 telling
11 reserve /5	24 ten
15 resource /2	17 terms
40 respect /8	194 than
22 responsible /3	21 thank
18 rest	1,345 that
44 result /4	21 that's
11 retailer /2	7,310 the
33 return /4	315 their
14 ride /4	228 them
110 right /6	34 themselves
17 ring /3	115 then
12 river /2	306 there
31 road /2	16 therefore
12 roll /5	152 these
24 room /3	478 they
16 round /3	44 thing
12 rub /3	82 things
21 rule /5	73 think
31 run /4	19 thinking
14 rush /3	22 third
18 sacrifice /3	24 thirty
28 safe /4	572 this
161 said	104 those
11 sail /5	38 though
67 same	67 thought
14 sat	27 thousand
14 satisfactory /2	13 thousands
64 save /3	75 three
41 saw	78 through
191 say /4	14 throughout
33 school /4	17 thus
31 sea /2	19 till
12 seat /3	205 time
24 second	27 times
17 section /3	2,924 to

TABLE 5

17 suppose	153 see /4
21 sure	20 seek /3
11 surely	75 seem /3
11 sweet	22 seize /5
19 system	29 self /4
13 table	22 sell /4
86 take	19 senate /4
46 taken	33 send /2
22 taking	25 sense /5
20 talk	28 sent
16 task	12 sentiment /3
12 taught	20 serious /3
22 tea	33 serve /6
51 tell	54 service /3
12 telling	54 set /3
24 ten	18 settle /5
17 terms	26 seven /5
194 than	37 several
21 thank	120 shall
1,345 that	18 shape /4
21 that's	13 share /3
7,310 the	194 she /3
315 their	23 shell /3
228 them	67 ship /7
34 themselves	19 short /4
115 then	119 should /2
306 there	12 shoulder /2
16 therefore	72 show /5
152 these	50 side /2
478 they	19 sight /3
44 thing	15 sign /3
82 things	19 similar
73 think	33 simple /4
19 thinking	52 since
22 third	14 single /2
24 thirty	29 sit /4
572 this	41 situation /2
104 those	53 six /5
38 though	16 size /3
67 thought	11 skill /2
27 thousand	21 slave /3
13 thousands	54 small /3
75 three	12 smile /4
78 through	300 so
14 throughout	18 social /3
17 thus	15 sold
19 till	41 soldier /5
205 time	152 some
27 times	40 something

TABLE 6

40 *Relative Frequency of English Speech Sounds*

TABLE 5

④ 68 today	14 sometimes
17 to-day	48 soon /2
25 together	25 sort /3
33 told	13 sound /5
11 tomorrow	17 south /2
12 tonight	34 speak /5
16 tons	35 special /5
57 too	13 speech /2
40 took	12 speed /5
17 total	12 spent
13 touch	21 spirit /3
19 toward	12 spoke /2
18 town	11 spring
11 trade	12 square /3
19 train	11 staff
17 training	12 stage
13 trains	61 stand /3
15 transportation	18 standard /3
26 troops	22 start /3
21 trouble	92 state /6
30 true	18 station /3
30 truly	15 stay /3
17 trust	48 steel
21 truth	22 step /3
14 try	58 still
11 trying	11 stock /2
17 turn	15 stone /2
30 turned	16 stood
13 twelve	20 stoop /2
30 twenty	15 stop /3
146 two	24 store /4
12 type	22 story /2
108 under	22 straight /5
19 understand	28 strange /5
12 unknown	31 street /2
21 unless	20 strength /2
50 until	26 strike /3
16 unto	22 strong /4
204 up	11 struggle /3
129 upon	19 study /4
123 us	40 subject /4
28 use <i>n</i>	12 submarine /2
36 use <i>v</i>	14 substitute /3
45 used	11 succeed /4
12 using	34 success /5
12 usual	16 suffer /3
26 value	132 such
14 various	23 suggest /6
145 very	20 suit /4
15 vessels	11 sum

TABLE 6

20 victory	16 summer
29 view	11 summon /4
13 village	45 supply /4
12 voice	24 support /5
14 wait	22 suppose /2
44 want	33 sure /3
24 wanted	11 surprise /3
12 wants	15 sweet /3
214 war	25 system /7
839 was	17 table /3
11 wasn't	164 take /4
39 water	33 talk /4
104 way	21 task /2
15 ways	20 tax /4
529 we	19 teach /5
13 weather	12 taught
25 week	22 tea
15 weeks	71 tell /3
113 well	12 tend /8
50 went	24 ten
305 were	22 term /2
15 west	13 terrible /2
253 what	11 territory /3
16 whatever	17 test /4
32 wheat	194 than
237 when	31 thank /4
83 where	1,367 that /3
31 whether	7,310 the
454 which	319 their /2
78 while	262 them /2
16 white	115 then
248 who	329 there /3
45 whole	152 these
28 whom	495 they /4
42 whose	126 thing /2
51 why	99 think /3
11 wide	22 third
11 wife	25 thirty /2
11 wild	572 this
445 will	194 those
13 willing	38 though
17 win	75 thought /3
11 winter	40 thousand /2
13 wise	75 three
28 wish	94 through /2
727 with	20 throw /4
20 within	17 thus
70 without	19 till
59 woman	232 time /2
47 women	12 tire /3

TABLE 5 TABLE 6

15 won	2,924 to
14 wonder	88 today /2
17 won't	25 together
19 word	33 told
18 words	14 tomorrow /2
83 work	22 ton /3
13 working	12 tonight
12 works	57 too
103 world	40 took
11 worse	19 total /2
22 worth	24 touch /5
252 would	24 toward /2
15 wouldn't	20 town /2
21 write	19 trade /5
14 written	56 train /5
32 wrong	26 transport /3
59 year	14 travel /6
93 years	15 treat /6
23 yes	12 tree /2
33 yesterday	12 trench /2
68 yet	26 troops
775 you	36 trouble /5
41 young	60 true /2
214 your	29 trust /5
16 you're	22 truth /2
56 yours	25 try /2
12 yourself	54 turn /4
	13 twelve
	31 twenty /2
146 two	
	18 type /2
109 under /2	
	30 understand /3
	12 union /2
	13 universe /5
	12 unknown
	21 unless
	50 until
	16 unto
207 up /3	
129 upon	
123 us	
28 use n	
100 use v /6	
19 usual /2	
13 utter /4	
38 value /5	
17 vary /3	
13 vast /3	
115 very	

TABLE 6

18 vessel /2
22 victor /3
37 view /4
13 village
12 visit /4
18 voice /3
16 vote /4
12 wage /4
11 wagon /2
24 wait /3
12 walk /4
83 want /4
217 war /2
12 warm /5
850 was /2
16 waste /5
25 watch /3
49 water /3
119 way /2
537 we /3
12 weak /6
14 weather /2
40 week /2
17 weight /5
113 well
50 went
307 were /2
21 west /3
260 what /2
16 whatever
36 wheat /2
237 when
83 where
31 whether
454 which
79 while /2
16 white
248 who
52 whole /2
28 whom
42 whose
51 why
13 wide /2
15 wife /2
11 wild
464 will /6
20 win /3
17 window /2
14 winter /3
16 wire /5

TABLE 6

13	wise
38	wish /4
727	with
20	within
70	without
16	witness /5
59	woman
48	women /2
15	won
27	wonder /5
17	won't
12	wood /4
38	word /3
127	work /7
117	world /4
11	worry /3
15	worse /2
27	worth /3
267	would /2
17	wound /4
40	write /5
14	written
39	wrong /2
14	yard /2
152	year /2
23	yes
33	yesterday
68	yet
808	you /5
41	young
283	your /4

Note in Table 3 that almost exactly 500 words occur over 20 times. By ignoring words of frequency 20 or under Table 5 may thus be read as an alfabetical list of the 500 commonest words which make up about 2/3 of all ordinary speech.

See also note on "war words" at end of Table 3 (page 30).

**Part 3—Syllables**



### Part 3 — Sillables

#### *Relativ frequency of the commoner sillables of English*

As with the commoner words, the commoner sillables of English make up a strikingly large proportion of all ordinary discourse. To parallel the facts observd:

10,119 different particular words make up 100,000 total.

About 4,400 different sillables, on a 41 sound basis, make up 143,000 total.

117 words occur over 100 times, and make up 56.0 % of the total.

220 sillables occur over 100 times, and make up 68.7 % of the total.

1,027 words occur over 10 times, and make up 78.6 % of the total.

1,370 sillables occur over 10 times, and make up 93.3 % of the total.

The sillable is investigated in as much detail as hereafter reported because it affords the only constant, readily distinguisht, and easily manipulated unit between simple sounds on the one hand and complete words on the other; and also because separate study of those consonant combinations occurring before and after the vowel of the sillable suffices to investigate practically all the characteristic sound combinations of English; leaving explicitly unstudied only those combinations occurring at the junction of sillables, much less uniform and characteristic, and sufficiently exhibited by the commoner words investigated.

Tables 7 and 8 following show the 220 commonest sillables which occur oftener than 100 times each in 100,000 words; first, arranged in order of frequency; second, classed by vowels and arranged in order of frequency under each vowel.

The fonetic notation adopted is the S S B key alfabet, strictly in harmony with the Revised Scientific Alfabet, shown in detail in Appendix A. Readers not familiar with the Revised Scientific Alfabet, Key 1 of the Standard Dictionary, should study this notation before examining the results hereafter reported.

The distinctiv treatment accorded the commonest word or sillable of English, *the*, is discuss at length under sounds (pages 123 and 126).

Thruout the sillable data occasional sillables containing a or u ar markt with a \*, to call attention to the slightly variant sound of a or u which usually occurs before r. The precise nature of these variant sounds wil be discuss in connection with the sound data (page 126).

Note that in such sillables as *bl n l pl nt* the sillabic *n* or *l* has vowel value, and is accordingly treated as the "vowel" of the sillable.

The 6 sillable tables which follow ar each based on the 1,370 commonest sillables occurring oftener than 10 times in 100,000 words, which make up 93.3 % of the total number of sillable occurrences. In view of the diversity of the material analized, and the more general character of sillables as compared with words, the conclusion seems warranted that these tables include most or all of those sillables likely to occur more than sporadically in any selection of 10,000 or even 100,000 words.

Study of the sillable, whether as a complete speech-unit or as a combining form, may focus on the vowel of the sillable, the initial sounds, or the final sounds. These tables exhibit the 1,370 commonest sillables under each of these 3 aspects.

Table 9, which presents the 1,370 commonest sillables clast by vowels, in order of frequency under each vowel, calls for no special comment. Table 10 is merely a conspectus of Table 9. In connection with the tables arranged according to initial or final sounds, however, certain structural characteristics of the English language should be observd.

One of the markt characteristics of English, of superlativ importance in constructing a sistem of shorthand, is the tendency of certain consonant sounds to occur in combinations of 2, 3, and even 4, both before and after the vowel of the sillable in which they occur, spoken in a single voice impulse with the vowel. The double combinations ar commonly known as consonant diphthongs.\*

\* Distinguish clearly between a digraph, two letters for one sound, and a diphthong, two vowel sounds (in the case of a consonant diphthong, two adjoining consonant sounds) pronounced in one sillable.

TABLE 7 220 COMMONEST SILLABLES, OCCURRING OFTENER THAN 100  
TIMES IN 100,000 WORDS, IN ORDER OF FREQUENCY

7,310	fil	464	e	235	par	153	bait	114	biz
4,001	ev	462	an	233	hur	152	fiz	113	kun
3,284	in	454	hwiç	230	yür	152	lit	111	jen
3,280	and	446	so	228	for	152	hai	110	nev
3,217	i	433	frem	226	pro	147	kud	110	e
3,167	a	414	had	225	kem	147	ləŋ	108	til
3,152	tū	412	wun	224	ful	147	hɪr	108	gud
2,353	inj	402	ment	222	tám	146	ver	107	par
2,084	er	394	haz	221	mor	145	kəz	107	muc
1,625	ri	386	bl	221	wər	143	rit	106	stand
1,416	it	386	en	218	pl	142	ber	106	wurld
1,346	flat	382	men	218	man	141	mēk	106	ens
1,286	iz	379	ərz	212	ſənz	141	ij	105	terz
1,259	á	378	ər	211	wē	141	im	105	sad
1,201	li	343	n	210	nai	140	pē	104	rōz
1,136	fér	341	mā	210	mē	136	tiv	104	sit
967	bi	335	dar	207	sē	134	did	104	ak
923	ſən	333	vp	206	tri	133	lēk	104	egz
907	ed	332	ət	200	si	132	suç	104	ənz
862	yū	329	bin	200	nē	132	ərn	101	ik
850	wəz	328	wur	194	pes	131	furst	98,149	[220]
841	wiſ	323	dēr	194	pur	130	pri		
835	di	308	ev	193	rt	130	mi		
830	ti	306	mf	188	ſi	129	hiŋ		
816	en	305	tu	187	ni	129	me		
783	az	295	eks	186	i	127	kel		
707	o	293	its	186	ſtan	127	get		
696	hi	291	kan	184	nū	127	u		
686	a	290	dər	182	gret	126	men		
679	əl	285	him	181	is	126	am		
675	en	282	us	181	to	125	hwar		
658	hav	281	wud	179	go	124	mit		
644	bi	277	ſum	179	med	124	wurk		
642	ar	277	hwet	179	sur	123	ərd		
621	bi	276	if	178	ad	122	part		
612	at	276	on	177	tek	122	tin		
602	ər	270	kum	171	tek	122	wel		
596	uet	268	yu	166	ke	121	giv		
575	ter	266	dē	166	ſelf	121	let		
572	dis	264	nes	166	les	120	sent		
570	əl	264	l	165	must	120	su		
556	ken	263	ſi	162	ent	120	sub		
537	wi	262	ſtem	161	ſed	120	ſal		
529	ez	261	dis	161	cur	119	tel		
517	but	258	uſ	160	te	119	ſud		
517	hiz	252	hū	155	most	119	nt		
478	de	251	ver	155	ə	117	mil		
478	no	246	hwen	154	le	116	mo		
470	wil	239	du	154	af	115	tiz		
466	un	238	pi	153	po	115	ſen		
63,814		79,914		89,468		96,012			

IN ORDER OF FREQUENCY UNDER EACH VOWEL.

U	S	O	U	Ö	Å	E	A	Ü
but 517	e 3167	o 707	tu 305	tü 3152	å 1259		air 378	nü 182
un 466	er 2084	no 478	wud 281	yü 862	ba 644		aat 332	
wun 412	en 923	so 446	yu 268	hü 252	må 341		nai 210	
up 333	tar 575	on 276	ful 224	dü 239	täm 222		bait 153	
wur* 328	al 570	or 228	çur 161	yür 230	rát 143		hau 152	
us 282	ən 386	pro 226	kud 147		lök 133			
sum 277	ərz 379	mor 221	u 127		säd 105			
kum 270	der 290	to 179	jud 119					
uf 258	ver 251	go 179	gud 108					
hur* 233	per 235	most 155						
pur* 194	ənz 212	po 153						
sur 178	ber 142	mo 116						
must 165	ərn 132	froz 104						
suç 132	me 129							
furst* 131	kel 127							
wurk* 124	man 126							
su 120	ərd 124							
sub 120	tel 119							
kun 113	terz 105							
muç 107	ənz 104							
wurld* 106								
<hr/>		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
4,866	10,180	3,468	1,740	4,735	2,847	0	1,225	182
21	20	13	9	5	7	0	5	1

TABLE 8. 220 COMMONEST SILLABLES CLAST BY VOWELS,

f1	n, l	a	a	e	ɛ	i	ɪ	ə	ə
fl 7,310	bl 386	and 3280	ar 642	ed 907	de 478	in 3284	bi 967	əv 4001	ər 1136
	n 346	flat 1346	part 123	en 675	ɛ 464	i 3217	hi 696	wez 850	əl 679
	l 264	az 783	par 107	ez 529	ər 323	ɪg 2353	wi 537	əm 816	ər 602
	pl 218	a 686		ment 402	də 266	ri 1625	m̄l 306	net 596	wər 221
	nt 119	hay 658		men 382	w̄e 211	it 1416	p̄l 238	k̄ən 556	leg 147
		at 612		ev 308	m̄e 210	iz 1286	s̄t 200	frem 433	k̄əz 145
		an 462		eks 295	s̄e 207	li 1201	r̄t 193	hwet 277	
		had 414		nes 264	ne 200	wif 841	ʃ̄l 188	kem 225	
		haz 394		neim 262	gr̄et 181	di 835	ɪ 186	pes 194	
		far* 335		hwen 246	m̄ed 179	ti 830	d̄iz 152	k̄e 166	
		kan 291		est 186	t̄ek 171	bi 621	h̄ir 147	ə 155	
		man 218		self 166	te 160	dis 572			
		fan 184		lea 166	l̄e 154	hiz 517			
		ad 177		ent 162	m̄ek 141	wil 470			
		af 154		sed 161	p̄e 140	hwic 454			
		əm 126		ver 146		bin 329			
		hwar* 125		get 127		its 293			
		sal 120		wel 122		him 285			
		stand 106		let 121		if 276			
		ak 104		sent 120		si 263			
				den 115		dis 261			
				jen 111		tri 206			
				nev 110		ni 187			
				e 110		is 181			
				ens 106		lit 152			
				egz 104		ij 141			
						im 141			
						tiv 136			
						did 134			
						pri 130			
						mi 130			
						hig 129			
						mit 124			
						tin 122			
						giv 121			
						mil 117			
						tiz 115			
						biz 114			
						til 108			
						sit 104			
						ik 101			
<u>7,310</u>									
<u>I</u>									
Total									
98,149	1,330		10,575	872	6,403	3,485	23,922	3,810	8,269
220	5		20	3	26	15	41	11	6

By analogy the triple combinations may be called consonant trithongs, and the exceptional quadruple combinations (as in *tempts*, *sixths*, *worlds*, etc) quadrifthongs. The combinations occurring before the vowel of their syllable may well be named preceding consonant difthongs and trithongs, and the combinations occurring after the vowel of their syllable following consonant difthongs, trithongs, or quadrifthongs.

Preceding consonant compounds are formed chiefly by *l*, *r* and *w* after other consonants, and by *s* before; the trithongs having always the form of *s* preceding a difthong—that is *s'l-* (*s*-consonant-*l*-vowel), *s'r-*, or *s'w-*. Following consonant compounds are more varied and numerous. The more important of these are formed by *s* and *z*, *t* and *d*, and with *l* and *r*; less often by *h*, *m*, *n*, *ŋ*.

Appendix B tabulates 57 consonants or consonant compounds which occur in English preceding the vowel of their syllable, of which 51 occur among the commonest syllables here reported; 181 consonants or consonant compounds which occur following the vowel of their syllable, of which 96 occur among the commonest syllables; also 51 sillabic consonant combinations, of which 22 occur among the commonest syllables. These appended tables will repay careful study in this connection altho their data are not directly quantitatively.

Table 11 presents the 1,370 commonest syllables in phonetic order, thus bringing together those syllables which begin with the same sound or sound combination. Table 12, which summarizes Table 11, shows at a glance the comparative frequency of the various preceding consonant compounds.

Table 13 presents the 1,370 commonest syllables in reverse phonetic order (riming dictionary order), thus bringing together those syllables which end with the same sound or sound combination. Table 14 summarizes Table 13, showing similarly the comparative frequency of the various following consonant compounds.

So far as I can determine the results here reported constitute the first and only reliable quantitative data with respect to the characteristic sound combinations, other than words, of English. The tables follow.

TABLE 9 1,370 COMMONEST SYLLABLES OCCURRING OFTENER THAN  
10 TIMES IN 100,000 WORDS, CLASPED BY VOWELS, IN ORDER  
OF FREQUENCY UNDER EACH VOWEL

n	l	a	land	36	par*	19
n	343	bl	386	and	3280	bajk
nt	119	l	264	flat	1346	kam
vn	98	pl	218	az	783	pak
zn	59	plz	34	a	686	blak
nd	44	lz	30	hav	658	bar
pn	41	tl	28	at	612	grami
zng	32	ld	28	an	462	faz*
nz	20	di	20	had	414	skwar*
dn	16	gl	20	haz	394	vans
kn	15	kl	17	dat*	335	an
		klz	15	kan	291	task
		blz	13	man	218	fast
				rjan	184	lak
				ad	177	dam
				af	154	gaf
				am	126	gal
				hwar*	125	rap
				Sal	120	trak
				stand	106	kat
				ak	104	çap
				mat	90	flat
				kar	88	fakts
				bak	87	vast
				last	86	sam
				fak	80	hab
				hap	69	paç
				kap	66	pan
				pas	65	ban
				haf	63	klard*
				bat	58	staf
				fakt	58	standz
				hand	57	ag
				val	53	trast
				mand	53	graf
				trans	51	(7) diarz*
				sat	50	lat
				past	47	wag
				prak	44	akts
				gan	42	
				ask	37	
<u>787</u>		<u>I,073</u>				<u>13,453</u>
<u>10</u>		<u>12</u>				<u>120</u>

a	e	je <sup>k</sup> t	66	sep	32	test	20
ar 642	ed 907	sev 64		et 32	spek 20		
part 123	en 675	el 63		twen 31	streh̄ 20		
par 107	ez 529	gen 62		ven 31	nent 20		
larj 69	ment 402	yes 57		hwef̄ 31	mes 20		
far 65	men 382	sek 56		pres 30	rev 20		
gard 47	ev 308	hed 56	(8)	ter 30	reg 19		
kar 43	eks 295	pen 55		sents 30	tempt 18		
carj 39	nes 264	selvz 55		ef 30	mend 18		
farm 35	fiem 262	pres 53		lekt 29	er 18		
bard 31	hwen 246	best 52		lent 29	plez 17		
mar 31	est 186	tem 52		help 29	dek 17		
hard 31	self 166	sez 52		dres 28	kwest 17		
fa 26	les 166	went 50		vest 28	frendz 17		
hart 25	ent 162	left 48		vent 28	mez 17		
bar 23	sed 161	tend 46		zent 28	eh 17		
start 22	ver 146	ker 46		çer 28	te 16		
orm 22	get 127	kwas 45		prest 27	def 16		
gar 19	wel 122	hev 45		fen 27	gres 16		
art 19	let 121	nekst 44		vel 27	felt 16		
karz 18	sent 120	ej 44		sted 27	net 16		
mark 18	fiēn 115	sel 43		res 27	med 16		
lar 18	jen 111	end 43		elz 27	ents 16		
parts 17	nev 110	dens 42		fens 26	ded 15		
marks 17	e 110	sept 41		meh̄ 26	se 15		
yardz 16	ens 106	rekt 41		west 26	fel 15		
har 15	egz 104	send 40		met 25	selz 15		
garjd 11	tel 100	bet 38		her 25	jes 15		
a 11	prez 99	tent 38		els 25	nek 15		
	sen 99	genf̄ 38		fend 24	ren 15		
	ek 99	rep 38		per 23	weſ̄ 15		
	ments 97	ber 36		tens 23	bred 14		
	es 94	dren 36		kept 23	kwent 14		
	ten 87	pekt 35		frend 23	fed 14		
	set 86	spekt 35		kred 22	step 14		
	em 86	fel 35		ref 22	seſ̄ 14		
	dent 82	spel 35		des 21	jekta 14		
	mem 80	sens 35		den 21	twelv 13		
	red 79	dem 34		ket 21	tes 13		
	genst 73	fer 34		frc̄ 21	dev 13		
	lek 73	rest 34		fek 21	dents 13		
	fekt 70	jest 33		gek 21	gets 13		
	ses 69	held 33		ick 21	spes 13		
	rek 69	dred 32		lem 21	jent 13		
	yet 68	ves 32		pend 20	jents 13		

lej	I3	e	sef	33	støj	I2	i
pel	I2	ñe	fel	32	sep	I2	in
trenç	I2	e	ret	32	bës	I1	i
dwel	I2	ñer	tend	31	gëjd	I1	inj
spent	I2	de	ge	31	gënd	I1	ri
zen	I2	wë	wëz	30	fred	I1	it
sens	I2	më	çenj	29	het	I1	iz
mens	I2	së	strët	28	rës	I1	li
rez	I2	në	strënj	28	rëz	I1	wid
rej	I2	grët	mëks	26	wëj	I1	di
hens	I2	mëd	dën	24			ti
helh	I2	tek	dët	23			bi
ets	I2	të	brëk	22			fis
pel	I1	le	tel	21			hiz
bed	I1	mék	feh	21			wil
beg	I1	pë	vel	21			hwic
tekt	I1	rë	sel	21			bin
del	I1	et	nët	21			its
gest	I1	ke	ej	21			him
splen	I1	stët	tët	20			if
zes	I1	këm	är	20			si
ßer	I1	ples	plenz	19			dis
nest	I1	dëz	pën	19			tri
welh	I1	kës	pënt	19			ni
ests	I1	lët	ëd	19			is
		sëm	pëd	18			lit
		mën	sëvd	17			im
		be	mët	16			ij
		tre	red	16			tiv
		ve	led	16			did
		sëv	tréd	15			pri
		nëm	çenjd	15			mi
		plën	wëst	15			hiy
		tën	plëst	14			mit
		fës	tëks	14			tin
		zë	klëm	14			giv
		rël	nëmz	14			mil
		ple	pëj	13			tiz
		stë	trënz	13			biz
		tren	grë	13			til
		gev	get	13			sit
		fe	slev	13			ik
		renj	mël	13			fj
		wët	tret	12			higk
		kët	ved	12			id
<u>12,076</u>					<u>6,126</u>		
<u>204</u>					<u>99</u>		

is	84	lib	30	lis	18	I	mir	30
min	83	wiſ	30	trib	17	bi	kris	28
bil	82	izm	30	vij	17	hi	tfn	27
biŋz	82	fig	29	vil	17	wi	dil	27
dü	81	fif	28	çis	17	rɪ	ʃn	27
ſip	77	sig	28	rid	16	pi	lɪd	27
lik	76	sin	28	bliŋ	16	si	tv	27
liv	71	lig	28	bis	16	ri	fi	26
sis	70	sil	28	tiſ	16	ɪ	ſtmd	26
wiz	69	prit	27	liſ	16	i	dɪd	25
tik	68	fit	27	kwip	15	ɪfz	rɪç	24
siv	68	ſips	27	kil	15	hir	fɪd	23
mis	68	nig	27	ſprɪŋ	15	ytrz	nt	23
tis	65	miſ	27	nif	15	hrt	ɪt	23
ſiŋ	65	bilt	26	niz	15	pɪs	lɪ	22
dif	63	trik	26	priz	14	liv	lɪst	22
fi	58	ſpir	26	driŋk	14	dɪ	fɪr	21
ſtɪl	58	riz	26	ki	14	mit	ſtrɪt	21
ſid	58	lij	26	fil	14	ɪç	ndz	21
zü	57	his	26	ſpi	14	nɪr	hi	20
big	55	il	25	ſiz	14	twin	ſtm	20
viſ	55	pli	24	riŋ	14	ytr	çɪf	20
bli	54	triz	24	hi	14	dɪr	tɪç	19
biŋz	53	brɪŋ	23	iv	14	tz	dɪp	19
sins	52	tivz	23	dik	13	ſtɪl	ſit	19
win	50	diz	22	kiŋ	13	ſid	ſiz	19
siks	49	rit	22	givz	13	ſt	çɪp	19
wim	48	ſi	21	fiz	13	fil	klin	18
ist	48	jin	21	vit	13	ſtn	ſwɪt	18
bild	47	mid	21	di	13	nɪd	plɪz	17
vi	44	wit	21	sik	13	kɪp	ſɪk	17
sti	44	ists	21	nid	13	mɪnz	ſlv	17
list	43	prin	20	driv	12	fɪt	lɪs	17
pi	42	bit	20	kwit	12	rɪd	plɪzd	16
ſiç	41	tij	20	fild	12	ti	wiks	16
ji	40	fin	20	ſtrikt	12	wɪk	krɪſt	15
viz	39	milk	20	riç	12	plɪt	pɪr	14
çil	39	sist	19	rij	12	hwit	pɪrd	14
gin	38	ſiŋ	19	brij	11	prɪ	trɪt	14
lim	35	zi	19	tif	11	klɪr	trɪm	14
pik	34	krit	19	hi	11	min	krɪt	14
vik	32	iſt	19	ſkil	11	ſpɪk	ſpɪç	13
pin	30	kwik	18	livd	11	grɪ	rɪçt	13
din	30	viz	18		28,388	ſtvd	rɪn	13
nit	30	ſkrip	18		179	ſtmz	rɪr	13
nü	30	miz	18					

Ist	13	e	pop	18	s	tæt	12
bit	12	ev	4001	bændz	18	fær	1136
trf	12	wæz	850	let	19	si	679
krm	12	ən	816	wæg	18	ør	602
spid	12	næt	596	kwel	17	wør	221
kri	11	kæn	556	hes	16	læg	147
grtz	11	fræm	433	eg	16	kæz	145
fildz	11	hwæt	277	præg	15	øf	72
sts-	11	kæm	225	ter	15	wænt	71
lf	11	pes	194	vel	15	hæt	68
lvz	11	ke	166	velvd	15	ø	61
trz	11	ø	155	præks	14	wæ	55
		øf	96	kwen	13	smæl	54
		eb	95	mæn	13	kæl	47
		ep	88	jæb	13	la	47
		fær	80	jær	13	mærn	46
		bed	67	kæŋ	12	nær	46
		et	67	mek	12	sæ	43
		prep	66	æk	12	færm	38
		fel	61	tel	11	læs	35
		get	55	kæsts	11	pær	34
		preb	45			kær	34
		spen	45			kæld	34
		med	38			bræt	33
		el	35			ræg	32
		bem	34			hærs	31
		mer	33			kærd	28
		nel	32			fel	28
		pref	30			læst	28
		del	30			kræs	25
		her	28			kwær	24
		nem	28			æk	23
		pel	27			stræn	23
		kest	26			sært	21
		ker	26			ſært	21
		pred	24			gæn	20
		klek	23			færmd	20
		prem	22			dræ	18
		pe	22			wørld	18
		dek	22			nørth	16
		køp	21			lez	16
		pres	20			øt	16
		kel	20			bred	14
		nen	20			dræn	14
		yend	19			kærn	14
<u>6,507</u>				<u>9,919</u>			<u>4,277</u>
<u>101</u>				<u>65</u>			<u>51</u>

u		fun	16	ə	gar	33	
but	517	dun	40	suf	16	jər	30
un	466	kul	40	lurnd*	16	ər	29
wun	412	trub	37	ul	16	ən	29
up	333	ħur*	37	dukt	15	ter	27
wur*	328	zult	37	jur*	15	el	27
us	282	jus	37	lurn*	15	en	27
sum	277	mus	36	surv*	14	ərz	27
kum	270	munħs	35	surg*	14	dər	27
uñ	258	vur*	34	surn*	14	ver	25
hur*	233	kumz	32	mul	14	pər	23
pur*	194	gurl*	32	brūf	13	ən̄z	22
sur*	178	trust	31	wurks*	13	ber	25
must	165	muñt	31	urħ*	13	ərn	24
suç	132	run	31	purts*	12	me	24
furst*	131	hurd*	31	blud	12	kel	24
wurk*	124	mur*	30	burn*	12	mən	24
su	120	munħ	28	kup	12	erd	23
sub	120	kus	27	vurt*	12	tal	22
kun	113	ħus	27	sump	12	terz	21
muç	107	hun	26	rub	12	ənz	21
wurld*	106	buv	25	bur*	11	ħer	21
just	100	um	25	tus	11	rə	21
pub	83	sun	24	fund	11	ler	20
fur*	81	kut	23	vurs*	11	pə	20
guv	78	gunz	23	strug	11	yən	20
duz	69	sug	23	stur*	11	te	18
nuħ	61	juj	23	ruħ	11	nel	18
mun	60	wurħ*	23	wurs*	11	pes	17
wuns	59	duk	22	wurldz*	11	ħel	16
num	58	ħurd*	22			berz	16
tur*	57	ut	22			sər	16
gun	56	ukts	21			ək	16
ur*	53	tuç	20			wərd	15
frunt	51	zurv*	20			əns	15
kuv	49	strukt	19			tent	15
dus	48	sus	19			sən	14
struk	48	wurd*	19			yən̄z	14
turn*	47	gurlz*	18			təns	14
suk	47	furm*	18			ke	14
muñ	46	wurdz*	18			jərz	14
kur*	45	turmz*	17			əlz	13
nuf	44	ħħus	17			ən̄	13
luv	43	nun	17			əd	12
yuñ	43	tunz	16			dərz	12
				7,773			
				119			

*Syllables*

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h̄er	II	O	vot	25	u	ü
o	707	forh	24	tu	305	tū
no	478	oz	24	wud	281	yū
so	446	stor	23	yu	268	hū
on	276	rodz	21	ful	224	dū
for	228	kort	20	çur	161	yûr
pro	226	bord	19	kud	147	9frū
mor	221	od	19	u	127	yûrz
to	179	klos	19	Sud	119	yûz
go	179	klozd	19	gud	108	fûd
most	155	kold	18	put	73	sûr
po	153	roz	18	wu	57	sûn
mo	116	post	17	luk	56	yûls
ñoz	104	bro	17	ur	52	yûzd
old	84	wont	17	çu	47	hûz
port	77	gro	15	tuk	40	mûv
hom	69	gron	15	yur	37	nûn
dont	67	gold	15	buks	34	trû
hol	61	sold	15	stud	28	hûm
ño	60	zors	15	çurz	26	trûps
lo	60	bor	13	zu	23	skûl
fors	59	goz	13	fut	19	pûr
sol	58	hiro	13	çurd	19	rûm
hold	51	kloz	12	yurz	19	klûd
lon	50	glo	12	buk	18	prûv
lö	48	spok	12	hud	18	trûh
por	47	ston	12	gudz	17	stûpt
kors	46	lon	12	flu	16	mûvd
boh	45	sol	12	lukt	16	jû
non	45	fo	11	yut	16	klû
ro	44	fon	11	stru	11	rûl
ko	42	vo	11	ud	11	yûn
hop	41	ho	11			tûr
rod	37					prûvd
poz	35					blû
told	34					lûz
kol	34					wûnd
noz	32					
tro	30					
ports	29					
pozd	28					
not	28					
do	27					
<u>12,350</u>				<u>5,418</u>		
<u>90</u>				<u>77</u>		
					<u>2,393</u>	
					<u>31</u>	
						<u>5,676</u>
						<u>36</u>

á	láz	26	é	ai	ü
á	wáz	26	peint	378	nù
bá	fán	25	béz	332	fü
má	strák	25	lé	210	mù
tám	tá	24	plé	153	dù
rát	hánd	24	él	152	bù
lák	plád	23	vés	99	dür
sád	kwárd	23	bé	77	dús
há	fár	23	stre	70	hù
láf	zár	23	je	64	kú
mát	dá	22	çés	52	vù
hwál	ál	22		maunt	34
nát	pláz	20		ái	34
fát	áv	20		raund	33
lát	vás	17		kaint	31
áz	sádz	17		urz	28
fánd	hwát	17		paindz	27
kánd	nán	16		dait	24
lán	mán	16		graund	21
hwá	táz	15		flair	21
fáv	flá	15		pauнд	20
sá	fás	15		haiz	19
mánd	rávd	15		nains	17
fá	práz	14		sañ	17
trä	táp	14		naunst	17
prás	krá	14		tañ	17
támz	rád	14		kraud	17
plá	ráz	14		saud	17
lá	wád	14		laud	17
dráv	wár	14			
fád	ád	14			
ázd	váz	13			
kwár	míl	13			
tár	frát	12			
vád	spát	12			
sát	wáf	12			
çáld	tárd	11			
prá	dád	11			
rá	ráts	11			
ám	wáld	11			
kwá					
vá					
máld					
lánz		5,258		2,048	973
sáz		84		28	25

TABLE 10 SUMMARY OF TABLE 9

Vowel sound	Occurrences	Items
n	787	10
l	1,073	12
<i>n, l</i>	1,860	22
a	13,453	120
ɔ	1,560	28
e	12,076	204
ɛ	6,126	99
i	28,388	179
ɪ	6,507	101
ə	9,919	65
ø	4,277	51
u	7,773	119
œ	12,350	90
o	5,418	77
u	2,393	31
ü	5,676	36
<i>Vowel</i>	115,916	1,200
ä	5,258	84
ø	221	10
ai	2,048	28
iu	973	25
<i>Diphthong</i>	8,500	147
ɛɪ	7,310	1
<i>n, l</i>	1,860	22
<i>Vowel</i>	115,916	1,200
<i>Diphthong</i>	8,500	147
<i>Total</i>	133,586	1,370

TABLE II 1370 COMMONEST SILLABLES IN FONETIC ORDER

u	e	o	u	ü	á	é	ai	ü
					plá 39 plád 23 pláz 20	plé 22		
			pro 226		prúv 21 prúvd 11	prá 30 prás 43 práz 14		
pub 83 pur <sup>a</sup> 194 purts <sup>a</sup> 12	pe 72 pes 61 per 235	po 153 post 17 poz 35	pu 73 pozd 28	pür 24		péint 51 pau 77 paund 24 paundz 26	pür 17	
blud 12				blü 11				
brud 13		bro 17						

62 *Relativ Frequency of English Speech Sounds*

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə	ə
b	bl 386 blz 13	bat 58 bad 24 bak 87 ban 12 bank 19 bar 18	bor 23 bard 31	bet 38 bed 11 beg 11 best 52 ber 36	be 54 bes 11	bi 621 bit 20 big 55 biz 114 bil 16 bin 329 bil 82 bilit 26 bild 47	blt 967 bem 12 bendz 18	bed 67 bem 34 bērn 11	bet 11	
	<u>5,121</u> <u>51</u>									
tr		trak 14 trakt 28 trav 20 trast 11 trans 51		treng 12	trē 54 trēt 12 trēd 15 trēn 37 trēnz 13	tri 206 trib 17 trik 26 triz 24	tri 12 trit 14 trim 14			
	<u>859</u> <u>28</u>									
tw				twen 31 twelv 13				twin 60		
	<u>104</u> <u>3</u>									
t	ti 28 8,123 77	tab 33 tak 32 taks 32 task 16		te 16 tek 11 tes 13 test 20 tem 52 tempt 18 ten 87 tent 38 tend 46 tens 23 tel 100 ter 30	tē 160 tet 20 tēk 171 teks 14 ten 43 tēnd 31 tēf 21 tēz 136 tiv 23 tis 65 tiz 115 tīf 16 tij 20 tin 122 til 108	ti 830 tik 68 tif 11 tin 27	tī 42 ter 19 tēr 27	tel 11 tēk 15 tēt 23		
				(8)						

v	b	o	u	ü	å	é	ä	ü
but 517	ben 12	boh 45	buk 18		ba 644	be 15	baut 153	bü 49
buv 25	ber 142	bor 13	buks 34		bez 29			
bur* 11	berd 16	bord 19						
burn* 12	berdz 53							
<hr/>								
trub 37	tre 14	tro 30		trü 30	trä 45			
trust 31	träl 20	trol 25		trüps 26				
				trüh 21				
<hr/>								
tus 11	ta 63	to 179	tu 305	tü 3152	tå 24		tan 19	tiü 28
tuç 20	tem 14	told 34	tuk 40	tür 12	táp 14			tüt 19
tunz 16	ten 13				táz 15			tüd 24
tur* 57	tent 40				tám 222			tün 17
turmz* 17	tens 36				támz 42			tür 11
turn* 47	tel 119				tár 34			
turnd* 41	ter 575				tárd 11			
	terd 29							
	terz 105							



u	e	o	u	ø	å	é	ai	ü
					dráv 37			
duk 22	da	24	do	27	dø	239	dá 22	daut 26
dukt 15	dám	24	dont 67		dád	11	dán 99	dús 39
dus 48	dár 290						düst 27	
duz 69	dérð 27						dür 47	
dun 40	dérz 33							
	klos 19			klú 14				
	kloz 12			klúd 23				
	klozd 19							
					krá 14		krád 15	
	kwæl 20				kwát 28			
					kwár 35			
					kwárd 23			

66 *Relative Frequency of English Speech Sounds*

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə
k 3,724 60	kn 15 (kl 17 klz 15 kan 291 kant 23 ka: 88	kap 66 karz 43 ket 21 ker 46 kem 82	kept 23 kət 33 kes 71 kēm 82	ki 89 kin 13 kil 15	kīp 14 kēt 13 kil 15	ke 166 kep 21 kest 26 kests 11 kēld 34 kem 225 kēr 34 ken 556 kērd 28 kenj 12 kel 20 ker 26	ket 11 kēs 145 kel 47 kēld 34 kēr 34 kērd 28 kērn 14	ket 11 kēs 145 kel 47 kēld 34 kēr 34 kērd 28 kērn 14	
gl 33 2		glad 21							
gr 335 10		graf II gram 18		gres 16 grēt 181			grī 30 grīz 11		
g 1,461 36	gl 20 gan 42 gal 15	gar 19 gard 47 gef 38 ges 11 gen 62 genast 73	get 127 gets 13 gēt 13 gēd 11 gēnd 11 genast 73	gē 31 gēt 13 gēv 36 gin 38 gējd 11 gēnd 11	giv 121 givz 13	gīvz 13	get 55 gen 20		
fl 69 4		flat 13							
fr 618 8				fref 21 frend 23 frendz 17	fred 11		fri 50 frem 433		

u	a	o	u	ø	å	é	au	ü
kup 12 kut 23 kuv 49 kus 27 kum 270 kumz 32 kun 113 kul 40 kur* 45	ka kel 127	ko 36 kol 34 kold 18 kort 20 kors 46	kud 147		kånd 53		kauñ 52 kauñt 37	kü 34 kir 28
		glo 12						
		gro 15 gron 15					grund 25	
guv 78 gun 56 gunz 23 gurl* 32 gurlz* 18	gæn 27 gel 14 gar 33	go 179 goz 13 gold 15	gud 108 gudz 17				gù 17	
		flu 16		flå 15			flair 25	
frunt 51				fråt 12				



u	ø	o	u	ø	å	é	ai	ü	
fun 16 fund 11 fur* 81 fur* 131 furm* 18	fe fer fert forh fors	24 23 16 24 59	fo fon ful forh fors	11 11 228 24 27	fut ful 224	19 224	füd fát fád fáv fáds fán fánd fár	53 62 37 49 15 25 60 23	fáud fú 100
vur* 34 vurt* 12 vurs* 11	ve vel ver	12 16 251	vo vot	11 25			vá vád vás váz	28 34 19 13	vú 34
			hro	13	(9)	hru	96		
hur* 37 hurd* 22							hai	40	
ðus 17	ðær 97		ðo 60 ðoz 104						



## Syllables

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72 *Relative Frequency of English Speech Sounds*

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə
sm									sməl 54
54 1									
sl				slēv 13					
13 1									
sw						swit 18			
18 1									
s	sat 50 sak 21 sam 13	se 15 sep 32 sept 41 set 86 sed 16 sek 56 sev 64 ses 69 sez 52 sel 14 sen 99 sent 120 sents 30 send 40 sens 35 sel 43 self 166 selvz 55	sə 207 səf 33 sēv 49 sēvd 17 səm 67 səl 21 siv 68 sis 70 sist 19 siz 14 siz 41 sim 65 sin 28 sins 52 siŋ 19 sil 28	si 263 sit 104 sid 58 sik 13 siks 49 sig 28 siv 68 sis 70 sist 19 siz 14 siz 41 sim 65 sin 28 sins 52 siŋ 19 sil 28	słt 200 stt 19 sik 51 sik 17 stv 17 stvd 30 stz 11 stz 19 stm 20 stmd 26 stmz 30 stn 48	se 43 sərt 21			
5,188 90									
z	zn 59 393 znz 32 14			zes 11 zen 12 zent 28	zə 28 zi 57	zi 19			

u	e	o	u	ü	à	è	á	ú
su 120	89	16 so 446		sún 48	sá 48		sauñ 21	sú 34
sub 120	sen	40 sol 58			sát 32		sáñd 11	sút 21
suk 47	senz 14	sold 15			sád 105			súm 20
sug 23	ser 52				sádz 17			
suf 16	serz 27				sáz 26			
sus 19								
suç 132								
sum 277								
sump 12								
sun 24								
sur* 178								
surv* 14								
surç* 14								
surn* 14								
zult 37	zend 27	zors 15			zár 23			
zurv* 20	zendz 13							

	n, l	a	ə	e	ɛ	i	ɪ	ə	ɔ	ʊ
S	sal 120		Sens 12	sep 12	Si 21	ʃi 188		Sert 21		
2,008			Sel 15	Sip 77	ʃin 27					
21			Selz 15	Sips 27						
			Ser II							
3										
47										
2										
ç	çap 14	çarj 39	çek 21	çenj 29	çis 17	çip 19				
	çarjd 11	çer 28	çenjd 15	çil 39	çif 20					
600										
19										
j			jeck 21		ji 40		job 13			
			jeckt 66		jin 21		jer 13			
659			jeckts 14							
21			jes 15							
			jest 33							
			jen 111							
			jent 13							
			jents 13							
m	mat 90	mar 31	met 25	mē 210	mi 130	mi 306	med 38	mēr 11		
	mag 20	mark 18	med 16	mēt 16	mit 124	mit 63	mek 12	mērn 46		
5,514			mas 30	marks 17	mēh 26	mid 21	min 34	men 13		
74			man 218		mes 20	mek 141	mis 68	minz 46	mer 33	
			mand 53		mez 17	mēks 26	miz 18	mīr 30		
			mar 25		mem 80	mēn 59	miš 27			
					men 382	mēl 13	min 83			
					ment 402		mil 117			
					ments 97		milk 20			
					mend 18					
					mens 12					

U	a	o	ʌ	ø	å	é	ai	ü
jus 27 janz 923 janz 212 sel 56	jan 923 son 12 sol 12	øo 48 jøn 12	sud 119	øür 53				
	3ən 24		3u 23					
gen 35 ganz 17		gu 47 gur 161 gurd 19 gurz 26		gåld 32	gøs 11			
jus 37 just 100 juj 23 jur* 15	jan 15 jer 30 jerz 36		jü 16		je 14			
mus 31 mus 36 must 165 muç 107 mun 60 munh 28 munhs 35 muj 46 mul 14 mur* 30	ma 129 man 126 most 155 mal 20 mar 29	mo 116 most 155 mor 221	muv 38 møvd 18	må 341 mát 85 mán 16 månd 48 mdl 13 mdlz 28	maunt 43	mù 55		

76 Relativ Frequency of English Speech Sounds

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə
n	See page 80	naʃ 29		net 16	ne 200	ni 187	nɪ 23	net 596	ner 46
		naç 21		nek 15	nêt 21	nit 30	nɪd 48	neim 28	nerh 16
		nan 20		nekst 44	nêm 48	nid 13	nɪdz 21	nen 20	
				nev 110	nêmz 14	nif 15	nɪr 61	nel 32	
				nes 264		niz 15			
				nest 11		nɪʃ 30			
				nent 20		nɪŋ 27			
l	See page 80	lat 11	lar 18	let 121	le 154	li 1201	lɪ 22	let 18	lə 47
		lak 16	karj 69	lek 73	let 70	lib 30	lɪd 27	les 35	
		last 86		lekt 29	led 16	lit 152	lɪf 11	lest 28	
		land 36		left 48		lik 76	lɪv 71	lez 16	
				les 166		liv 71	lvz 11	len 147	
				lej 13		livd 11	lɪs 17		
				lem 21		lis 18	list 22		
				lent 29		list 43			
						lɪl 16			
						lij 26			
						lim 35			
						lij 28			
r	rap 15			rep 38	rə 99	ri 1625	rɪ 193	reh 32	
	raf 32			red 79	rət 32	rit 22	rɪd 43		
				rek 69	red 16	rid 17	rɪs 24		
				rekt 41	rəs 11	riz 26	rɪkt 13		
				reg 19	rəz 11	rīç 12	rɪn 13		
				ref 22	rənʒ 35	rīj 12	rɪr 13		
				rev 20	rəl 39	rīŋ 14			
				res 27					
				rest 34					
				rez 12					
				rej 12					
				ren 15					

u	e	o	u	ø	å	ø̄	ai	ü
nuf 44	ue 27	no 478		nún 37	nát 64		nai 210	nú 182
nuh 61	nens 22	not 28			nán 16		nains 22	núz 33
nun 58	nel 63	noz 32					nainst 20	
nun 17	ner 27	non 45						
luv 43	le 15	lo 60	luk 56	luz 11	lá 39	le 25	laud 11	lü 31
lurn* 15	ler 73	lon 50	lukt 56		lat 61			
lurnd* 16					lák 133			
					láf 91			
					láz 26			
					lán 53			
					lánz 27			
rub 12	re 75	ro 44		rüm 24	rá 30		rand 39	
rus 11	rel 25	rod 37		rül 13	rát 143			
run 31		rodz 21			ráts 11			
		roz 18			rád 14			
					rávd 15			
					ráz 14			

78 *Relative Frequency of English Speech Sounds*

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə
w		wag 11 war* 22		wef 15 west 26 went 50 wel 122 welh 11	wē 211 wēt 35 wēst 15 wēz 30 wēj 11	wit 21 wid 841 wiz 69 wiſ 30 wim 48	wl 537 wik 42 wlks 16 win 50 wil 470	wez 850 wēl 18 wēnt 7 wēnts 1 wēr 22 wērd 1 wērm 1	wē 5 wēnt 7 wēnts 1 wēr 22 wērd 1 wērm 1
y				yardz 16	yet 68 yes 57			yīr 60 yīrz 93	yēnd 19
hw		hwar* 125		hweſ 31 hwen 246		hwiç 454	hwit 38	hwet 277	
h		hap 69 haps 26 hab 13 had 414 haf 63 hav 658 haz 394 han 21 hand 57 handz 32	hor 15 hart 25 hard 31 help 29 held 33 helh 12 her 25	hed 56 hev 45 hens 12	het 11 his 26 hiz 517 him 285	hi 14 his 26 hiz 517 him 285	hīr 696 hīr 147	hes 16	hērs 3

u	e	o	u	ü	ä	ë	å	ü
wun 412	werd 47	wont 17	wu 57	wünd 11	wád 14			
wuns 59			wud 281		wáf 12			
wur* 328					wáz 26			
wurd* 19					wáld 11			
wurdz* 18					wár 14			
wurk* 124								
wurks* 13								
wurh* 23								
wurs* 11								
wurd* 106								
wurldz* 11								
<hr/>								
yug 43	yén 67		yu 268	yú 862				
	yenz 38		yut 16	yús 48				
	yer 21		yur 37	yúz 54				
			yurz 19	yúzd 45				
				yún 13				
				yúr 230				
				yúrz 56				
<hr/>								
					hwá 51			
					hwát 17			
					hwáld 80			
<hr/>								
hun 26	her 11	ho 11	hud 18	hü 252	há 100		hau 152	hü 35
hur* 233		hop 41		hüz 42	hánd 24		hais 70	
hurd* 31		hom 69		hüm 28			háuz 23	
		hol 61						
		hold 51						



## Syllables

81

u	ə	o	u	ø	å	ɛ	æ	ɪ	ʊ
up 333θ	31670	707u	127		å 1259	el	20	aɪt 332	
ut 228pt	15od	19ud	11		åd 14			aɪr 378	
ukts 21st	25oz	24ur	52		av 20			aɪrz 34	
uf 258ed	35on	276			az 61				
us 242ek	49old	84			azd 37				
um 25ez	18				am 30				
un 466en	386				al 22				
ul 16ent	21								
ur* 53end	26								
urh* 13ens	41								
	enz 104								
	el 570								
	elz 36								
	er 2084								
	ert 21								
	erd 124								
	erz 379								
	ern 132								
<u>1,480</u>	<u>7,233</u>	<u>1,110</u>	<u>190</u>		<u>1,443</u>		<u>20</u>	<u>744</u>	
<u>10</u>	<u>18</u>	<u>5</u>	<u>3</u>		<u>7</u>		<u>1</u>	<u>3</u>	
<u>7,773</u>	<u>12,350</u>	<u>5,418</u>	<u>2,393</u>	<u>5,676</u>	<u>5,258</u>		<u>221</u>	<u>2,048</u>	<u>973</u>
<u>119</u>	<u>90</u>	<u>77</u>	<u>31</u>	<u>36</u>	<u>84</u>		<u>10</u>	<u>28</u>	<u>25</u>

TABLE 12 SUMMARY OF TABLE II

Initial sound	Occurrences	Items	Initial sound	Occurrences	Items
pl	460	16	spl	11	1
pr	1,061	24	spr	15	1
p	3,242	59	sp	280	13
bl	111	5	str	261	12
br	147	8	st	617	19
b	5,121	51	skr	18	1
tr	859	28	skw	18	1
tw	104	3	sk	36	2
t	8,123	77	sm	54	1
dr	191	8	sl	13	1
dw	12	1	sw	18	1
d	3,657	54	s	5,188	90
kl	210	11	z	393	14
kr	175	10	ʃ	2,008	21
kw	281	13	ʒ	47	2
k	3,724	60	c	600	19
gl	33	2	j	659	21
gr	335	10	m	5,514	74
g	1,461	36	n	3,527	51
fl	69	4	l	4,027	63
fr	618	8	r	3,314	53
f	4,048	71	w	5,553	51
v	1,364	38	y	2,130	21
hr	184	3	hw	1,319	9
h	554	11	h	5,051	48
ſ	4,090	16	<i>Consonant</i>		80,905
					1,217

Initial sound	Occurrences	Items	
n	526	4	
l	322	3	
<i>n, l</i>	848	7	
a	6,721	22	
ä	694	4	
e	3,999	25	
ɛ	621	5	
i	13,069	20	
ɪ	379	7	
ə	5,381	10	
ø	1,430	5	
u	1,489	10	
ɔ	7,233	18	
ø	1,110	5	
ø	190	3	
<i>Vowel</i>	42,316	134	
ä	1,443	7	
ø	20	1	
ai	744	3	
<i>Diphthong</i>	2,207	11	
<i>m</i>	7,310	1	
<i>Consonant</i>	80,905	1,217	
<i>n, l</i>	848	7	
<i>Vowel</i>	42,316	134	
<i>Diphthong</i>	2,207	11	
<b>Total</b>	<b>133,586</b>	<b>1,370</b>	

TABLE I3 1370 COMMONEST SILLABLES IN REVERSES

**FONETIC ORDER — RIMING DICTIONARY ORDER**

86 *Relative Frequency of English Speech Sounds*

## Syllables

87

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə
st						ɪst 19			
ſt	<u>19</u> I								
çt						rɪçt 13			
ſt	<u>13</u> I								
nt	kant 23		ent 162	pənt 19				wənt 71	
nt	<u>1,456</u> 25		spent 12						
			tent 38						
			dent 82						
			vent 28						
			sent 120						
			zent 28						
			jent 13						
			ment 402						
			nent 20						
			lent 29						
			went 50						
			kwent 14						
lt			felt 16		bilt 26				
lt	<u>79</u> 3								
rt			art 19					sərt 21	
rt	<u>377</u> 11		part 123					Sərt 21	
			start 22						
			hart 25						

u	ə	o	u	ü	å	é	ai	iu
frunt 51	ent 21	dont 67						
tent 40	wont 17							
stant 18								
punt 51	kant 37							
	mant 43							
zult 37								
vurt <sup>9</sup> 12	ert 21	port 77						
fart 16	kort 20							

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə
t 8,841 94	nt 119	at 612		et 32	ɛt 97	it 1416	ɪt 23	ət 67	ət 16
	pat 20			bet 38	tɛt 20	bit 20	bit 12	get 55	bət 11
	bat 58			ket 21	stɛt 89	fit 27	fit 44	net 596	tət 12
	kat 14			get 127	dɛt 23	sit 13	sit 19	let 18	kət 11
	dat 1346			set 86	kɛt 33	ɪt 104	ɪt 63	hwet 277	hət 68
	sat 50			met 25	gɛt 13	mɪt 124	pɪt 41		bət 33
	mat 90			net 16	mɛt 16	nɪt 30	trɪt 14		
	lat 11			let 121	nɛt 21	lɪt 152	strɪt 21		
	flat 13			yet 68	lɛt 70	rɪt 22	krit 14		
					rɛt 32	pɪt 27	swɪt 18		
					tret 12	krit 19	hwɪt 38		
					stret 28	wɪt 21			
					grɛt 181	kwɪt 12			
					wɛt 35				
					hɛt 11				
lvd 15 1								velvd 15	
vd 102 6					svd 17	livd 11	stvd 30		
zd 145 5							plzdz 16		
njd 15 1					çenjd 15				
rjd 11 1				çarjd 11					

## Syllables

91





94 *Relative Frequency of English Speech Sounds*

	n, l	a	ə	c	ɛ	i	ɪ	e	ə
rd		pard* 25 klard* 12 <u>593</u> 20	bard 31 gard 47 hard 31				pird 14		kərd 28 wərd 18
d	nd 44 ld 28 <u>4,219</u> 66	ad 177 bad 24 glad 21 had 414		ed 907 bed 11 sted 27 ded 15 scd 14 sed 161 med 16 bred 14 dred 32 red 79 kred 22 hed 56	əd 19 ped 18 ved 12 med 179 led 16 rid 16 trəd 15 fred 11	id 86 did 134 sid 58 mid 21 nid 13 rid 17	sɪd 12 dɪd 25 stɪd 51 nɪd 48 lɪd 27 rɪd 43	bed 67 med 38 pred 24	brəd 14
sk		ask 37 task 16 <u>53</u> 2							
ŋk		bang 19 hank 24 <u>150</u> 4				hɪŋk 93 drɪŋk 14			
lk						milk 20			
rk				mark 18					

## Syllables

95



## Syllables

97



## Syllables

99

100 *Relativ Frequency of English Speech Sounds*

v	ə	o	u	ü	i	ɛ	a	ü
				trüps 26				
ukts 21								
purts* 12	ports 29							
					räts 11			
wurks* 13								
				bucks 34				

102 *Relativ Frequency of English Speech Sounds*

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə
nhs									
	35								
I									
ns		vans 17		ens 106		sins 52			
		trans 51		tens 23					
	589			dens 42					
I7				fens 26					
				sens 35					
				ſens 12					
				mens 12					
				hens 12					
ls				els 25					
	25								
I									
rs									hers 3
	173								
6									
s		as 21		es 94	b8s 11	is 181	pfs 74	pes 194	les 33
		pas 65		ſpes 13	k̚es 71	tis 65	ſts 11	pres 20	kr̚es 2
	3,897	mas 30		tes 13	ſes 42	dis 261	lis 17	hes 16	
64		klas 22		des 21	ples 81	vis 55	kr̚is 28		
				ves 32	r̚es 11	diſ 572			
				ſes 69		ſis 70			
				zes 11		çis 17			
				jes 15		miſ 68			
				mes 20		liſ 18			
				nes 264		hiſ 26			
				les 166					
				res 27					
				pres 53					
				dres 28					
				gres 16					
				kwes 45					
				yes 57					



104 *Relative Frequency of English Speech Sounds*

	n, l	a	ə	e	ɛ	i	ɪ	ə	ə
ndz 118 6		standz 12 handz 32		frendz 17				bendz 18	
rldz II I									
ldz II I							fldz II		
rdz 34 2			yardz 16						
dz 76 4								ndz 21	
gz 104 I				egz 104					
lvz 55 I				selvz 55					
vz 47 3					tivz 23 givz 13	lvz II			





u	e	o	u	ü	å	é	ä	ú
turmz* 17								
kumz 32					támz 42			
tunz 16	enz 104							
gunz 23	senz 14				lánz 27			
	ßenz 212							
	çenz 17							
	yənz 38							
gurlz* 18								
	elz 36				mıldz 28			
erz 379		çurz 26	yürz 56					
perz 13		yurz 19						
berz 53								
terz 105								
derz 33								
serz 27								
jerz 36								
					dırz 34			



## Syllables

109





112 *Relative Frequency of English Speech Sounds*





u	e	o	u	ø	å	ø	ai	ü
gurl* 32								
ul 16	el 570	kol 34	ful 224	skul 25	äl 22	el 20		
kul 40	tal 119	sol 58	rul 13	mdl 13				
mul 14	kal 127	sol 12		hwäl 80				
	gel 14	trol 25						
	vel 16	hol 61						
	sal 56							
	mel 20							
	nal 63							
	rel 25							
	treł 20							
	kwel 20							
ur* 53	er 2084	por 47	ur 52	pür 24	tär 34	air 378	pür 17	
pur* 194	per 235	bor 13	çur 161	tür 12	fär 23	flair 25	tür 11	
bur* 11	ber 142	stor 23	yur 37	sür 53	zär 23		dür 47	
tur* 57	ter 575	for 228	yür 230	wär 14				
stur* 11	där 290	mor 221		kwar 35				
kur* 45	ger 33							
fur* 81	fär 23							
vur* 34	vär 251							
hur* 37	där 97							
sur* 178	ser 52							
jur* 15	jär 30							
mur* 30	mär 29							
wur* 328	när 27							
hur* 233	ær 73							
	yer 21							
	her 11							





118 *Relative Frequency of English Speech Sounds*

TABLE 14. SUMMARY OF TABLE 13

Final sound	Occurrences	Items	Final sound	Occurrences	Items
mp	12	1	sk	53	2
lp	29	1	ŋk	150	4
p	1,072	23	lk	20	1
b	532	12	rk	142	2
mpt	18	1	k	2,193	50
pt	98	4	g	250	12
skt	36	1	lf	166	1
kt	471	14	f	1,126	22
ft	48	1	lv	13	1
kst	44	1	rv	34	2
nst	93	2	v	6,268	31
rst	158	2	nh	28	1
st	1,356	32	ŋh	20	1
ſt	19	1	lh	23	2
gt	13	1	rh	76	4
nt	1,456	25	h	212	7
lt	79	3	d	1,274	9
rt	377	11	ps	79	3
t	8,841	04	kts	59	4
lvd	15	1	sts	43	3
vd	102	6	nts	181	6
zd	145	5	rts	58	3
njd	15	1	ts	350	5
rjd	11	1	rks	30	2
jd	11	1	ks	480	8
rmd	20	1	nhs	35	1
md	26	1	ns	589	17
rnd	57	2	ls	25	1
nd	4,230	28	rs	173	6
rld	106	1	s	3,897	64
ld	409	13			
rd	593	20			
d	4,219	66			

Final sound	Occurrences	Items	Final sound	Occurrences	Items
ndz	118	6	n	572	6
rldz	11	1	l	953	7
ldz	11	1	n, l	1,525	13
rdz-	34	2			
dz	76	4	a	686	1
gz	104	1	ə	37	2
lvz	55	1	e	141	3
vz	47	3	ɛ	3,030	21
rmz	17	1	i	9,657	25
mz	118	4	ɪ	3,921	21
nz	548	12	ə	343	3
ŋz	135	2	ə	224	5
rlz	18	1	u	120	1
lz	106	4	ə	3,674	13
rz	932	16	o	2,885	22
z	6,395	61	u	854	8
ʃ	606	17	ə	4,672	9
ʒ	73	3	Vowel	30,244	134
nç	12	1			
rç	14	1	ə	2,774	17
ç	936	13	ə	91	5
nj	92	3	ə	479	4
rj	108	2	ə	650	12
j	405	15	Diphthong	3,994	38
zm	30	1			
rm	124	5			
m	3,388	41			
rn	291	8			
n	13,102	102	ə	7,310	1
ŋ	2,957	17	Consonant	90,513	1,184
rl	32	1	n, l	1,525	13
l	4,671	74	Vowel	30,244	134
r	12,189	108	Diphthong	3,994	38
Consonant	90,513	1,184	Total	133,586	1,370



**Part 4—Sounds**



## Part 4

### Sounds

#### Relativ frequency of the simple sounds of English

Any statement of the relativ frequency of the simple sounds of English must, to hav definit, general, or comparativ value, make unmistakably clear the fonetic basis on which it rests, with respect to

- 1) The number, and nature, of the sounds distinguisht,
- 2) The authority for pronunciation adopted, and
- 3) The particular treatment accorded the words *the* and *a*, and the so-cald "neutral vowel," *ə*.

The Revised Scientific Alfabet used as Key 1 of the Standard Dictionary, is a medium precision, 48 sound, fonetic alfabet for English, based on the American Filological Association alfabet of 1876. The basis and detaild structure of this alfabet ar explaind with admirable simplicity and clearness in the *Spelling and Pronunciation* preface of the unabridged Standard Dictionary (editions since 1911) which should be consulted by all interested in this aspect of the problem.

As the Standard Dictionary was adopted, for reasons previously discust, as the authority for pronunciation for this investigation, the maximum of information was obviously to be secured by performing the primary analisis of sounds on the 48 sound basis of Key 1, making possible any desired treatment or presentation of final results simply by combining the separate unit data thus secured in various forms.

On the 48 sound basis of Key 1, the "neutral vowel" offers no problem, for the simple, definit treatment of the unstrest vowels is perhaps the most distinctiv characteristic of this alfabet. On any basis, however, the particularly common words *the* and *a* require separate consideration, for each has alternativ correct pronunciations, concurrently used by careful speakers. Thus, (Standard Dictionary): *the*, *θɪ* (named or emphatic);

*ɪ* (unemfatic before a vowel); *ɪə* (unemfatic before a consonant). *a, e* (unaccented, *a*).

To consider 10% of the occurrences of each of these 2 words as named or emphatic or accented is a maximum assumption so far as I can deduce from observation and the estimates of others. As the proportion of initial vowels to initial consonants is roughly 1 to 2, the unemfatic 90% of occurrences of *the* may properly be distributed as 30% *ɪ*, and 60% *ɪə*. This basis is adopted in Table 15 following, which shows, in phonetic order, the total frequency of occurrence of each of the 48 sounds distinguished by the Standard Dictionary, and the number of different items or places in which each occurred, in the 100,000 words counted and analyzed.

In Table 15 only, the Revised Scientific Alphabet is used instead of the SSB key alphabet in order to represent the 7 additional vowel and diphthong sounds \* distinguished by the former. See Appendix A for statement of the slight differences between these alphabets. The 7 additional sounds interpolate readily and obviously in the phonetic order adopted.

As the general purpose of this investigation was not only to introduce into the study of phonetics an important quantitative element heretofore lacking, but also to provide data of immediate practical value in the teaching of English, and in phonetic writing of English, more particularly phonetic shorthand writing, it is obvious that these data should be organized on a phonetic basis of maximum simplicity, minimum precision, sufficient for these purposes. The large experience of Pitmanic shorthand has demonstrated, I think conclusively, that 40 sounds (considering *ç* and *j* as simple sounds, and counting the 4 vowel diphthongs *ɪ ɛ ʊ ɔ*) represent the extreme minimum with which strictly phonetic writing of English may be achieved. By *strictly* I refer to no particular degree of precision but to strict adherence to the principle: one sign for each sound, one sound for each sign.

The SSB key alphabet here adopted differs from the minimum 40 sound basis of Pitmanic shorthand practis

\* See page 126 following.

TABLE 15 RELATIV FREQUENCY OF THE SIMPLE SOUNDS  
OF ENGLISH ON THE 48 SOUND BASIS OF THE REVISED  
SCIENTIFIC ALFABET. ARRANGED IN FONETIC ORDER

Sound	%	Occurrences	Items	Sound	%	Occurrences	Items
p	2.04	7,620	1,960	a	3.50	13,060	1,445
b	1.81	6,750	1,175	ä	.23	881	141
t	7.13	26,550	4,495	ə	.22	820	120
d	4.31	16,050	3,100	o	.02	95	50
k	2.71	10,100	2,700	ü	.47	1,740	306
g	.74	2,760	635	e	3.44	12,800	3,170
f	1.84	6,860	1,135	ɛ	1.84	6,863	1,317
v	2.28	8,490	910	i	4.42	16,493	4,151
fh	.37	1,380	210	ɪ	2.12	15,301	1,826
th	3.43	12,780	116	ɔ	2.81	10,450	1,050
s	4.55	16,970	4,155	ø	1.26	4,701	491
z	2.97	11,070	2,050	ʊ	1.70	6,360	1,115
sh	.82	3,052	846	ö	.63	2,350	440
ʒ	.05	170	51	ə	4.63	17,264	2,937
ch	.52	1,930	350	o	.33	1,230	415
j	.44	1,630	495	ö	1.30	4,859	763
m	2.78	10,360	1,840	u	.69	2,570	450
n	7.24	26,980	4,375	ü	1.60	5,961	311
ŋ	.96	3,590	1,035	Vowel		35.32	131,719
l	3.74	13,930	3,290	Diphthong		21,374	
r	6.88	25,620	5,420	ai	1.59	5,923	857
w	2.08	7,760	555	ei	.09	345	105
y	.60	2,230	245	au	.59	2,215	235
h	1.81	6,755	485	iu	.02	60	35
<i>Consonant</i>		62.10	231,387	41,628	iu	.29	1,080
<i>Vowel</i>		35.32	131,719	21,374	ü		290
<i>Diphthong</i>		2.58	9,623	1,522	ai	2.58	9,623
<i>Total</i>		100.00	372,729	64,524	ei		1,522

the 7,310 assumed; æ 10%; ð 30%; ðø 60%  
a 2,120 " e 10%; ø 90%

only in its recognition of the "neutral vowel" and its treatment of the word *the*. It differs from the 48 sound basis of the Revised Scientific Alfabet only in its treatment of the word *the* and in ignoring the 7 finest distinctions of the latter. These ar:

Between the *ü* of *feud* and of *futility*  
 "      *a*      *art*      "      *artistic*

The vowel of *fast*, distinguisht as a hibrid, neither the *a* of *fat* nor the *a* of *far*.

Between the *o* of *note* and of *obey*  
 "      *i*      *bit*      "      *habit*  
 "      *a*      *bat*      "      *bare*  
 "      *u*      *but*      "      *burr*

The first 5 of these combinations ar sufficiently obvious. Of the 6th I may say that my personal judgment, confirmed by those advisers in whom I hav most confidence, is that the vowel (Revised Scientific Alfabet *ä*) of *bare* resembles more closely the *e* of *bet* than the *a* of *bat*, and might therefore be more appropriately combined with the former. Of the 7th my personal judgment, confirmed by the International Fonetic Association alfabet, as nearly final authority as the vext field of fonetics affords, is that the vowel (Revised Scientific Alfabet *ö*) of *burr* differs slightly in quality as wel as quantity from the *u* of *but*, but is identical except for *stress* with the "neutral vowel" *ə* of *member*, and might therefore be more appropriately combined with the latter. On both these points however it has seemed more useful to adhere strictly to the basis of classification implied by the Revised Scientific Alfabet, as used in the Standard Dictionary, making the combinations tabulated above. Those interested in separate consideration of these 2 sound classifications wil find sillables containing these 2 sounds (the *a* of *bare* and the *u* of *burr*) distinguisht by a \* thruout the sillable tables, while the frequency of the sounds alone appears, of course, in Table 15.

One reason for separate treatment of the commonest word, *the*, is suggested by the discussion of its alternativ correct pronunciations (page 123 preceding.) Another is that shorthand practis almost invariably, and properly,

treats the word *the* with a separate sign; so that for purposes of shorthand construction, data not subject to the markt influence of this commonest word are more accurately significant. A third reason is the markt economy of effort of a single sign, as compared with 2 fonetic or 3 *a b c* letters, for the most frequent word of English, which occurs more often than do over half of the simple sounds, in a fonetic print notation. Both on theoretic and practical grounds a separate logotype for the word *the* seems a happy solution.

This fonetic basis of the S S B key alfabet, which involvs the minimum of assumption (with respect to *the*, *a*, and *e*) wil be designated for explicit distinction the 41 + 1 sound basis (the Pitmanic 40 sounds plus *e*, and plus *dī*).

Table 16 following givs, in fonetic order, the relativ frequency of the separate simple sounds of English speech, showing the per cent which each is of the total, the total number of its occurrences in 100,000 words, and the number of different places in which each occurrd; on the 41 + 1 sound basis above described.

In Table 17 following, the left hand colums show the relativ frequency of English speech sounds, on the 41 + 1 sound basis, arranged in order of frequency of their total occurrence. The colum heded Occurrences + Items givs an incidental mesure (inverse) of what might be calld the versatility of each sound — whether it occurs chiefly in a few words of great importance, as with *f*, or in many words of relativly infrequent occurrence, as with *ŋ* or *j*. The right hand colums show in detail the frequency of occurrence of each sound initially, medially, finally, or alone in sillables; and initially, medially, finally, or alone in words. These latter analitic data ar of indispensable importance to any study of language structure as a scientific basis for shorthand construction, and wil be significant in much more general linguistic study.

The arrangement in order of frequency shows that, of the 42 fonetic elements distinguisht:

The first 4 sounds make up over 25 % of the total

"	9	"	50 %	"
"	19	"	75 %	"

TABLE 16. RELATIV FREQUENCY OF THE SIMPLE SOUNDS OF ENGLISH ON THE 41 + 1 SOUND BASIS OF THE SSB KEY ALFABET. ARRANGED IN FONETIC ORDER

Sound	%	Occurrences	Items	Sound	%	Occurrences	Items
p	2.08	7,620	1,960	a	4.04	14,761	1,706
b	1.84	6,750	1,175	ə	.50	1,835	356
t	7.27	26,550	4,495	e	3.50	12,800	3,170
d	4.39	16,050	3,100	ɛ	1.88	6,863	1,317
k	2.77	10,100	2,700	i	8.12	29,601	5,976
g	.76	2,760	635	ɪ	1.96	7,190	875
f	1.88	6,860	1,135	ɔ	2.86	10,450	1,050
v	2.32	8,490	910	ø	1.29	4,701	491
h	.38	1,380	210	ʊ	2.38	8,710	1,555
ñ	1.50	5,470	115	ə	3.52	12,878	2,936
s	4.64	16,970	4,155	o	1.66	6,089	1,178
z	3.03	11,070	2,050	u	.70	2,570	450
ʃ	.84	3,052	846	ü	1.63	5,961	311
ʒ	.05	170	51	<i>Vowel</i>		34.04	124,409
ç	.53	1,930	350				21,371
j	.45	1,630	495	ä	1.61	5,923	857
m	2.83	10,360	1,840	ø	.09	345	105
n	7.38	26,980	4,375	ai	.61	2,215	235
ŋ	.98	3,590	1,035	u	.31	1,140	325
l	3.82	13,930	3,290	<i>Diphthong</i>		2.62	9,623
r	7.02	25,620	5,420				1,522
w	2.12	7,760	555				
y	.61	2,230	245				
h	1.85	6,755	485				
<i>Consonant</i>	61.34	224,077	41,627				
<i>Vowel</i>	34.04	124,409	21,371				
<i>Diphthong</i>	2.62	9,623	1,522				
ñ	2.00	7,310	1				
Total	100.00	365,419	64,521				

a 2,120 assumed; e 10% e 90%

To facilitate comparativ study of the more fonetic of existing shorthand sistems, and other minimum precision fonetic notation schemes, the data on relativ frequency of sounds ar reduced to the 40 sound basis and presented, in order of frequency, in Table 18 following. This reduction, with its non-recognition of the "neutral vowel" involvs treating *the* and *a* as occurring only with their formal strest pronunciation, and distributing the occurrences of *e* in accord with the most usual treatment of such occurrences in Pitmanic shorthand, as indicated at the bottom of the table.

Fonetists ar to-day agreed as to the definit and constant caracter of the *neutral vowel* or *low unstrest vowel*, *a*, which furnisht one of the most perplexing problems of the spelling reformer or shorthand inventor of 2 generations ago; so that a fonetic notation primarily to be red in print which did not include a sign for this sound would be unthinkable for any purpose, however "popular" or general; and experience shows that the average layman has no difficulty in recognizing this sound clearly in a fonetic print. But in the present fonetic innocence of the general public, created and maintainid by the non-fonetic caracter of the present heterogeneous conventional spelling, there is some question whether the average layman could *use* this sound intelligently in writing, in shorthand or otherwise. Table 17 may therefore be regarded as presenting the optimum, and probably feasible, basis of popular fonetic understanding; Table 18 the minimum basis, alredy proved practicable.

TABLE 17. RELATIVE FREQUENCY OF ENGLISH SPEECH SOUNDS, ON THE 4I + I SOUND BASIS OF THE SSB KEY ALPHABET. ARRANGED IN ORDER OF FREQUENCY

Sound	% Occurrences	Items	Occurrences Items	Syllabic analysis			Word analysis			Sound	
				Initial	Media	Final	Syllabic	Initial	Medial		
i	8.12	29,601	5,976	4.96	9,943	10,010	6,431	3,217	6,730	18,750	4,121
n	7.38	26,980	4,375	6.17	3,977	8,460	14,200	343	2,590	15,650	8,740
t	7.27	26,550	4,495	5.91	9,620	2,410	14,520	5.150	9,630	11,770	n
r	7.02	25,620	5,420	4.73	3,720	9,370	12,530	2,255	14,995	8,370	t
s	4.64	16,970	4,155	4.08	7,850	2,120	7,000	5,575	6,765	4,630	r
d	4.39	16,050	3,100	5.13	4,290	520	11,240	2,760	3,480	9,810	s
a	4.04	14,761	1,706	8.65	6,109	7,945	21	686	6,690	8,071	d
l	3.82	13,930	3,290	4.23	4,606	3,190	5,870	264	2,090	7,575	a
e	3.52	12,878	2,936	4.31	4,131	5,030	550	3,167	840	10,040	l
e	3.50	12,800	3,170	4.03	3,895	8,740	55	110	1,700	11,100	e
z	3.03	11,070	2,050	5.40	548	300	10,220	2	15	1,530	z
ə	2.86	10,450	1,050	9.97	5,265	4,850	180	155	5,120	5,330	ə
m	2.83	10,360	1,840	5.63	5,830	570	3,960	4,020	4,015	m	
k	2.77	10,100	2,700	3.74	5,400	1,730	2,970	3,990	4,680	1,430	u
u	2.38	8,710	1,555	5.60	1,550	7,040	120	1,230	7,480	k	
v	2.32	8,490	910	9.33	1,640	350	6,500	540	2,635	v	
w	2.12	7,760	555	13.98	5,810	1,950	5,480	2,280	5,315	w	
p	2.08	7,620	1,960	3.89	5,325	885	1,410	3,425	3,640	555	p
di	2.00	7,310	1	—	—	—	7,310	350	4,030	7,310	di
i	1.96	7,190	875	8.22	204	2,990	3,810	186	350	2,810	i

## Sounds

TABLE I8 RELATIV FREQUENCY OF ENGLISH SPEECH SOUNDS  
ON THE 40 SOUND BASIS OF STANDARD PITMANIC SHORTHAND.  
ARRANGED IN ORDER OF FREQUENCY

Sound	%	Occurrences	Items	Sound	%	Occurrences	Items
i	7.94	29,601	5,976	f	1.84	6,860	1,135
n	7.24	26,980	4,375	h	1.81	6,755	485
t	7.13	26,550	4,495	b	1.81	6,750	1,175
r	6.88	25,620	5,420	o	1.63	6,089	1,178
u	5.02	18,750	4,320	ü	1.60	5,961	311
s	4.55	16,970	4,155	ä	1.59	5,923	857
d	4.31	16,050	3,100	ö	1.26	4,701	491
a	4.17	15,601	1,841	ŋ	.96	3,590	1,035
i	3.89	14,500	876	ſ	.82	3,052	846
l	3.74	13,930	3,290	g	.74	2,760	635
e	3.44	12,800	3,170	u	.69	2,570	450
ň	3.43	12,780	116	y	.60	2,230	245
z	2.97	11,070	2,050	ai	.59	2,215	235
ø	2.81	10,450	1,050	ç	.52	1,930	350
m	2.78	10,360	1,840	ə	.52	1,925	391
k	2.71	10,100	2,700	j	.44	1,630	495
ɛ	2.35	8,771	1,317	h	.37	1,380	210
v	2.28	8,490	910	ü	.31	1,140	325
w	2.08	7,760	555	ø	.09	345	105
p	2.04	7,620	1,960	ʒ	.05	170	51
	81.76	304,753	53,516		18.24	67,970	11,005
					81.76	304,753	53,516
				Total	100.00	372,729	64,521

the 7,310 assumed: ſt  
a 2,120 " e

ø 10,970 " { a 840 (initial in words)  
u 10,040 (medial " )  
ə 90 (final " )

## General Summary

The outstanding feature of this study is the degree to which a comparatively small part of the commoner words, sillables, or sounds, of English form, by their frequent repetitions, a large part of our ordinary speech. In general summary, for the 100,000 words investigated:

9 words are found to form over	}	25%	of the total words
12 sillables			" sillables
4 sounds			" sounds
69 words	}	50%	" words
70 sillables			" sillables
9 sounds			" sounds
732 words	}	75%	" words
339 sillables			" sillables
19 sounds			" sounds
1027 words occurring over 10 times form 78.6% of the words			
1370 sillables		form 93.4%	" sillables
41 + 1 sounds	form	100%	" sounds

Intensiv study of these commoner words and sillables, and the simple sounds, wil thus suffice to giv an organized and fairly adequate quantitativ conception of the fonetic structure of modern English.



## Appendix A\*

**A Simple Fonetic Key Alfabet for General Use**

There is urgent need for a minimum precision fonetic key alfabet of maximum simplicity, for general popular use as distinct from the purposes of the professional fonologist. Such an alfabet wil be of constant and general usefulness—in teaching reading or the pronunciation of English to children or adults; in the teaching of shorthand, which writes by sound, not by spelling; and for all purposes involving accurate expression of English pronunciation in print or longhand, including the literature of spelling reform. The various instruments thus far available for such purposes ar all, in various degrees, unsatisfactory. These ar, chiefly:

The "Webster" notation and similar complex diacritic schemes, obscure, fonetically misleading, and altogether objectionable; long since repudiated by all filologists or fonetists.

The International Fonetic Association alfabet, designed to cover all languages with a maximum of scientific precision, using a basic alfabet of 65 different letters with numerous modifiers which serv to distinguish several hundred different sounds; a valuable tool of the professional fonetician, but for general popular use for English too complex and over-refined, and *tipografically strange*.

The Revised Scientific Alfabet, often referd to as the N E A (National Education Association) alfabet, used as Key I of the New Standard Dictionary and its abridgments; based on the 1877 alfabet of the American Filological Association. This is a medium precision alfabet for English, distinguishing 48 sounds; incomparably the best for its purpose ever devised, but stil too complex for the simplest general popular use.

The fonetic key alfabet here presented, used for fonetic key purposes in all publications of the Simplified Spelling Board, is strictly in harmony thruout with the Revised Scientific Alfabet, on which it is based.

(10) \* A circular of the Simplified Spelling Board.

**Fonetic Key Alphabet****24 CONSONANTS**

Print	Script	Name	As in
p	p̄	pi	pin, cup
b	b̄	bi	bin, cub
t	t̄	ti	ten, bet
d	d̄	di	den, bed
k	k̄	ki	come, back
g	ḡ	gi	gum, bag
f	f̄	ef	fan, safe
v	v̄	ev	van, save
h	h̄	eh	thigh, bath
th	th̄	et̄	thy, bathe
s	s̄	es	seal, race
z	z̄	ez	zeal, raise
ʃ	ʃ̄	ef̄	assure, rush
ʒ	ʒ̄	eḡ	azure, rouge
ç	ç̄	ec̄	choke, rich
j	j̄	ej̄	joke, ridge
m	m̄	em̄	met, him
n	n̄	en̄	net, thin
ŋ	ŋ̄	eȳ	ink, thing
l	l̄	lē	laid, deal
r	r̄	rē	rajd, dear
w	w̄	wē	wet, quit
y	ȳ	yē	yet, you
h	h̄	hē	head, who

**13 VOWELS**

Print	Script	Name	As in
a	ə̄	at̄	am, pat, (pair)
ɔ	ɔ̄	ā	alms, part, ma
e	ɛ̄	et̄	edge, let
ɛ̄	ɛ̄	ē̄	age, late, may
i	ī	it̄	is, sit, army
ɪ̄	ɪ̄	ī̄	ease, seat, me
ə̄	ə̄	ət̄	odd, not
ə̄	ə̄	ə̄	awed, naught
ʊ̄	ʊ̄	ut̄	up, ton, (turn)
ə̄	ə̄	ər̄	about, utter, na- tion, china
ō	ō	ō	open, tone, show
ū	ū	ut̄	full, could
ǖ	ǖ	ǖ	fool, shoe

**4 DIPHTHONGS**

Print	Script	Name	As in
ā̄	ā̄	ā̄	aisle, pint, by
ō̄	ō̄	ō̄	oil, point, boy
ū̄	ū̄	ū̄	out, power, now
ǖ	ǖ	ǖ	pure, few

**SUPPLEMENTARY SIGNS**

fl̄ fl̄ =

A wordsign or logotype for the commonest word of English, *the*.

\* \* capsing

Fonetic print capitals are heavy or bold-face letters, otherwise similar to the small letters. To capitalize a fonetic longhand word, write the capsing before it.

For most teaching or manuscript purposes the *disjoined* long-hand letters below, similar in form to the print letters, will be preferable to the script forms, which necessarily differ somewhat from the print, just as common script differs from common print.

p b t d k q f v h ð s z ð ð j m n y l r w y h  
a a e e i i ð ð u o u û ð ð a u u ð ð

### lijkən'z getizburg spiç

forskor and sevn yírz ægo ar farðerz bræt forh en  
fis kentinent a nu nēson, konsivd in liberti, and dedi-  
keted tu mi prepozisen dat el men ar krieted ikwal.

wi wi ar engejd in a græt sivil wör, testij  
hwefer flat nēson, er eni nēson so konsivd and so  
dediketed, kan løy endür. wi ar met en a græt  
batl-fild ev flat wör. wi hav kum tu dediket a por-  
son ev flat fild az a fænø restin-ples fær doz hū hir  
gēv ðér lávz flat flat nēson mat liv. it iz əltægerðar  
fitij and proper flat wi Sud dū fis,

but in a larjær sens, wi kanet dediket — wi  
kanet kensikret — wi kanet halo — fis graind. mi  
bræv men, livin and ded, hū strugld hir, hav kensikreted it far əbuv ar pür paær tu ad er ditrakt.  
mi wurd wil litl not nor løy rimember hwot wi se  
hir, but it kan never forget hwot ðe did hir. it  
iz fær us, mi livin, rafær, tu bi dediketed hir tu mi  
unfinist wurk hwiç ðe hū fæt hir hav fis far so  
nobli advanst. it iz rafær fær us tu bi hir dediketed  
tu mi græt task rimēnij bifor us — flat frøm ðiz  
enard ded wi tek inkrist divosən tu flat kæz fær  
hwiç ðe gēv mi last ful mezur ev divosən; flat wi  
hir hæli rizelv flat mi ded sal net hav dæd in vën;  
flat fis nēson, under gæd, sal hav a nu burh ev  
fridem; and flat guvernment ev mi pipl, ba mi pipl,  
fær mi pipl, sal net periñ frøm mi urh.

## 138 Relativ Frequency of English Speech Sounds

The linear order and fonetic names of the present alfabet ar based on establisht shorthand practis, for which they ar both logical and convenient.

Brief study wil enable any one to read the selection on the preceding page. An hour's study wil giv any one at all familiar with fonetics a thoro working knowledge of the key, which meets fully the 2 essentials of a strictly fonetic notation: one and only one sound for each sign, and one and only one sign for each sound.

The only differences between this alfabet and the Revised Scientific Alfabet as used in the Standard Dictionary series ar these: all easily mastered in 10 minutes by any one familiar with the latter—

S S B key	a a i u o û	h f ſ ʃ ç	d ə ɔ əu ɯ	ɹ ɿ	ɛ ɪ ʊ ə
Revised	a a i u o û	sh th sh ch	ai ei au iu	thl	ɛ ɪ ʊ ə
Scientific	ä ä i ö ö ü			thu	
Alfabet	a			the	

I                    2                    3                    4                    5

1 Reduction to a minimum precision 41 sound basis from the medium precision 48 sound basis, by ignoring the 7 finest distinctions of the latter—at best negligible, at worst confusing, for practical popular use.

2 Simple single letters in place of the 4 consonant digraf ligatures temporarily adopted by the N E A committee as a concession to visual prejudice.

3 Single letters, each an obvious blend of the 2 fonetic elements, for the 4 vowel diphthongs, in place of writing the diphthong by its 2 component letters—a gain in clearness and simplicity in harmony with shorthand practis.

4 A logotype for the commonest word of English, *the*, which has 3 different pronunciations concurrently used by careful speakers; combining logical simplicity with efficiency.

5 Slightly curving the macron over the markt long vowels as a constant reminder not to use the misleading Webster "name-sounds" for these letters.

General use of this key alfabet for all popular fonetic purposes wil conduce to simplicity and clearness, and go far toward clarifying the now sadly deficient popular understanding of the elementary essential fonetic facts of English.

SIMPLIFIED SPELLING BOARD  
4 Emerson Hall, Harvard University  
Cambridge, Mass.

December, 1922

## Appendix B

### Consonant compounds of English

Altho these tables giv qualitativ rather than quantitativ information as to the fonetic structure of English, they ar particularly suggestiv in connection with the quantitativ data of this investigation.

Tables B1, B3, B5 present respectivly those preceding, sillabic, and following consonant compounds, and consonants, which I hav noted in the course of this study, or at other times, with key words for each. Tho I hav excluded from Table B1 a dozen or more distinctly foren compounds, occurring only in proper names or technical terms of foren origin, these tables ar more complete than any that I hav seen, and certainly contain all compounds of anything like common occurrence in English. Entries enclosed in parentheses are compounds which do not occur more than 10 times in the material of this study. About half (in each table) of those so markt do occur from 1 to 10 times in this material.

Table B1 — and also B3, sillabic compounds — is arranged in fonetic order, like Table 12. Table B5 is arranged in reverse fonetic order, like Table 14.

Tables B2, B4, B6 present the same preceding, sillabic, and following consonant compounds and consonants, each in a classified arrangement which emfasizes the extent to which the whole group may be regarded as the product of a very few combining consonants acting as modifiers of the rest of the consonant alfabet. This striking and important fact may be summarized as follows:

### Consonant compounds and consonants

<i>Preceding</i>	<i>Sillabic</i>	<i>Following</i>
s } , { l-	n }	t
o } o { r-	nd }	ts
w-	nz }	d
o-	l }	dz
	ld }	s
	lz }	z
		o

$$57/57 = 100\% \quad 50/51 = 98\% \quad 135/181 = 75\%$$

In the above summaries, and in the tables following, the hyphen represents the place of the vowel of the syllable; the apostrophe represents the place of any consonant which may occur in such a combination; and the italic *o* represents the absence of any consonant at that point. Thus, substituting the consonant *p* for the apostrophe in the above summaries, they would denote the following consonant compounds and consonants occurring in the succeeding tables:

<i>Preceding</i> (also)	<i>Syllabic</i> (also)	<i>Following</i> (also)
spl- sl-	pn n	-lpt -pt -lt -rt -t
spr- sw-	pnd nd	-lps -pts -lts -rts -ts
sp- s-	pnz nz	-lp -ps -ld -rd -d
pl- l-	pl l	-rpt -p -ldz -rdz -dz
pr- r-	pld ld	-rpts -ls -rs -s
p- w-	plz lz	-rps -lz -rz -z -rp -l -r

The summary figures express the fact that all 57 of the preceding, 50 of the 51 syllabic, and 135 of the 181 following compounds and consonants, may be reduced to the forms symbolized above. Note particularly that the preceding group involves only 4, the syllabic group only 4, the following group only 6, and all 3 groups together only 8 different combining consonants, to produce 196/243 (excluding 46 single consonant occurrences) or over 80% of all consonant compounds here reported.

TABLE BI 57 PRECEDING CONSONANT COMPOUNDS  
AND CONSONANTS. IN FONETIC ORDER,  
WITH KEY WORDS

				Summary	
pl-	place	spl-	split		
pr-	price	spr-	spring	,	23
p-	part	sp-	speak	'l-	5
bl-	black	str-	street	'r-	9
br-	brought	st-	still	'w-	6
b-	be	(skl-	sclerosis)		
tr-	true	skr-	scrape	s'-	8
tw-	twelve	skw-	square		
t-	to	sk-	school	s'l-	2
dr-	drive	(sf-	sphere)	s'r-	3
dw-	dwell	sm-	small	s'w-	1
d-	do	(sn-	snow)	Total	57
kl-	clear	sl-	slow		
kr-	crowd	sw-	sweet		
kw-	quite	s-	so		
k-	can	z-	zone		
gl-	glad	(ʃr-	shrewd)		
gr-	great	ʃ-	she		
(gw-	guano)	ʒ-	jardinier		
g-	good	ç-	charge		
fl-	flour	j-	just		
fr-	from	m-	my		
f-	for	n-	not		
v-	very	l-	like		
hr-	thru	r-	right		
(hw-	thwart)	w-	was		
h-	thing	y-	you		
ft-	that	hw-	which		
		h-	he		
		57			

TABLE B2 57 PRECEDING CONSONANT COMPOUNDS  
AND CONSONANTS. CLAST

TABLE B3 51 SILLABIC CONSONANT COMPOUNDS AND CONSONANTS. IN FONETIC ORDER, WITH KEY WORDS

				Summary	
open	pn	even	vn		
(opened	pnd)	(evened	vnd)	'n	6
(opens	pnz)	(evens	vnz)	'nd	5
people	pl	(evil	vl)	'nz	6
(peopled	pld)	(navaled	vld)	n, nt, nd, nz	4
peoples	plz	(evils	vlz)		
cable	bl	(heathen	fn)	'l	9
(cabled	bld)	(heathens	fñz)	'ld	9
cables	blz	reason	zn	'lz	9
title	tl	(reasoned	znd)	l, ld, lz	3
(titled	tld)	reasons	zñz		
(titles	tlz)	(foozle	zl)		
garden	dn	(foozled	zld)	Total	30
(gardened	dnd)	(foozles	zlx)		51
(gardens	dnz)	happen	n		
handle	dl	doesn't	nt		
(handled	dld)	happened	nd		
(handles	dlz)	happens	nz		
broken	kn	battle	l		
(betokened	knd)	battled	ld		
(tokens	knz)	battles	lz		
article	kl				
(articled	kld)				
articles	klz				
single	gl				
(singled	gld)				
(singles	glz)				
(trifle	fl)				
(trifled	fld)				
(trifles	flz)				

TABLE B4 51 SILLABIC CONSONANT COMPOUNDS  
AND CONSONANTS. CLAST

'	'n	'nd	'nz	'l	'ld	'lz	
o	n	*nt					
o	nd	nd					
p	pn	pnd	pnz	pl	pld	plz	
b				bl	bld	blz	
t				tl	tld	tlz	
d	dn	dnd	dnz	dl	dld	dlz	
k	kn	knd	knz	kl	kld	klz	
g				gl	gld	glz	
f				fl	fld	flz	
v	vn	vnd	vnz	vl	vld	vlz	
ʃ	ʃn		ʃnz				
ʒ	zn	znd	z nz	zl	zld	z lz	
	7	7	7	10	10	10	Total 51
Single	I			I			2
Double	6	2	I	9	I	I	20
Triple		5	6		9	9	20
							Total 51

\* Irregular

TABLE B5 182 FOLLOWING CONSONANT COMPOUNDS  
AND CONSONANTS. IN REVERSE FONETIC ORDER —  
RIMING DICTIONARY ORDER — WITH KEY WORDS

(grasp	-sp)	reached	-st	milk	-lk
stamp	-mp	(burnt	-rnt)	work	-rk
help	-lp	sent	-nt	take	-k
(sharp	-rp)	built	-lt	(burg	-rg)
up	-p	part	-rt	big	-g
(bulb	-lb)	it	-t	(triumph	-mf)
(curb	-rb)	(bulbed	-lbd)	self	-lf
job	-b	(curbed	-rbd)	(scarf	-rf)
(grasped	-spt)	(rubbed	-bd)	if	-f
tempt	-mpt	(begged	-gd)	twelve	-lv
(helped	-lpt)	solved	-lvd	serve	-rv
(warped	-rpt)	(served	-rvd)	of	-v
kept	-pt	moved	-vd	(depth	-ph)
asked	-skt	(breathed	-fd)	(eighth	-th)
(thanked	-ŋkt)	(adzed	-dzd)	(width	-dh)
(milked	-lkt)	(cleansed	-nzd)	(fifth	-fh)
(worked	-rkt)	used	-zd	(sixth	-ksh)
fact	-kt	(rouged	-zd)	month	-nh
(triumphed	-mft)	changed	-njd	strength	-ŋh
(engulfed	-lft)	(bulged	-ljd)	health	-lh
(dwarfed	-rft)	charged	-rjd	worth	-rh
left	-ft	gaged	-jd	both	-h
(unearthed	-rht)	(chasted	-zmd)	with	-ff
(lathed	-ft)	(filmed	-lmd)	(grasps	-spš)
(lapsed	-pst)	formed	-rmd	(stamps	-mps)
(11) next	-kst	seemed	-md	(helps	-lps)
	-nst	turned	-rnd	(harps	-rps)
danced	-nst	and	-nd	ships	-ps
(whilst	-lst)	(longed	-ŋd)	(tempts	-mpts)
first	-rst	world	-rlđ	(excerpts	-rpts)
must	-st	old	-ld	(scripts	-pts)
(welshed	-lſt)	hard	-rd	(instincts	-ŋkts)
wished	-ſt	had	-d	facts	-kts
(branched	-nct)	ask	-sk	(gifts	-fts)
(filched	-lct)	think	-ŋk	(texts	-ksts)
(searched	-rc̩t)				

(bursts	-rst(s)	words	-rdz	turn	-rn
lasts	-sts	needs	-dz	in	-n
cents	-nts	(burgs	-rgz)	long	-ŋ
(belts	-lts)	eggs	-gz	girl	-rl
parts	-rts	selves	-lvz	all	-l
its	-ts	(serves	-rvz)	for	-r
(asks	-sks)	gives	-vz		<u>181</u>
(thanks	-ŋks)	(bathes	-fz)		
(milks	-lks)	(prisms	-zmz)		
works	-rks	(films	-lmz)		Summary
books	-ks	terms	-rmz	'	21
(nymphs	-mfs)	times	-mz	't, -'d	22
(gulfs	-lfs)	(turns	-rnz)	"t, -"d	36
(dwarfs	-rfs)	lines	-nz		
(cuffs	-fs)	things	-ŋz	's, -'z	18
(depths	-phs)	girls	-rlz	"s, -"z	29
(eighths	-ths)	miles	-lz		
(widths	-dhs)	years	-rz	'ts, -'dz	10
(fifths	-fhs)	is	-z	"ts, -"dz	6
(sixths	-kshs)	(welsh	-lʃ)		
months	-nths	(harsh	-rʃ)	Other -"	37
(lengths	-ŋhs)	fish	-ʃ		
(healths	-lhs)	rouge	-ʒ	-kʂ̄, kʂ̄s	2
(births	-rhs)	trench	-nç	Total	<u>181</u>
(deaths	-ħs)	(filch	-lç)		
since	-ns	search	-rç		
else	-ls	such	-ç		
force	-rs	change	-nj		
this	-s	(bulge	-lj)		
(bulbs	-lbz)	large	-rj		
(verbs	-rbz)	judge	-j		
(jobs	-bz)	chasm	-zm		
hands	-ndz	(film	-lm)		
worlds	-rldz	form	-rm		
fields	-ldz	from	-m		

TABLE B6 182 FOLLOWING CONSONANT COMPOUNDS  
AND CONSONANTS. CLAST

	Group					-t -d	-s -z	-ts -dz	-st -zd	-sts -sds					
	1	2	3												
			m	n	ŋ										
-p						-pt	-ps	-pts	-pst						
	-sp		-mp			-spt	-sps								
				-lp		-mpt	-mps	-mpts							
					-rp	-lpt	-lps								
						-rpt	-rps	-rpts							
-b						-bd	-bz								
				-lb		-lbd	-lbz								
					-rb	-rbd	-rbz								
See columns	{ -t						-ts			(12)					
	-d						-dz			-dzcl					
	-k					-kt	-ks	-kts	-kst	-ksts					
		-sk		-gk		-skt	-sks								
				-lk		-gkt	-gks	-gkts							
					-rk	-lkt	-lks								
						-rkt	-rks								
-g					-rg	-gd	-gz								
-f						-ft	-fs		-fts						
		-mf				-mft	-mfs								
				-lf		-lit	-lfs								
					-rf	-rft	-rfs								
-v						-vd	-vz								
				-lv		-lvd	-lvz								
					-rv	-rvd	-rvz								
-h						-ht	-hs								
-ph							-phs								
-th							-ths								
-dh							-dhs								
-fh		*-ksh					-fhs								
				-nh			-kshs								
				-gh			-nhs								
					-lh		-lhs								
					-rh		-rhs								
-t̪						-rht	-fd	-fdz							

\* Irregular



## Appendix C

### **Expansion of Table 9**

TABLE C 1370 COMMONEST SILLABLES, CLASPED BY VOWELS,  
SHOWING INITIAL, MEDIAL, FINAL, AND WORD OCCURRENCES  
OF EACH

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
<i>n</i>										
n	343	76			46	19	297	57		
nt	119	17					119	17		
vn	98	4					98	4		
zn	59	15			13	8	46	7		
nd	44	22					44	22		
pn	41	5			9	3	32	2		
z nz	32	4					32	4		
nz	20	10					20	10		
dn	16	4			2	2	14	2		
kn	15	3					15	3		
	<hr/> 787									
<i>l</i>										
bl	386	138			1	1	385	137		
l	264	45			19	9	245	36		
pl	218	12					218	12		
plz	34	8					34	8		
lz	30	4					30	4		
tl	28	7			16	3	12	4		
ld	28	18					28	18		
dl	20	8			1	1	19	7		
gl	20	7			1	1	19	6		
ki	17	9					17	9		
klz	15	8					15	8		
blz	13	8					13	8		
	<hr/> 1,073									
<i>a</i>										
and	3280	1							3280	1
flat	1346	2			I	I			1345	I

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<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oe	It	Oe	It	Oe	It	Oe	It	Oe	It
az	783	2					1	1	782	1
a	686	215	673	204	13	11				
hay	658	3	41	2					617	1
at	612	13	10	5	5	4	3	3	585	1
an	402	20	131	27	1	1			330	1
had	414	2	3	1					411	1
haz	394	4	4	3					390	1
dar*	335	9	20	8					300	1
kan	201	24	97	10	7	4			187	1
man	218	27	57	21	4	4	1	1	156	1
fan	184	1							184	1
ad	177	60	156	52	0	6			12	2
af	154	10	152	8	2	2				
am	120	20	25	10	26	9			75	1
hwar*	125	14	12	8			30	5	83	1
sal	120	1							120	1
stand	100	12	30	5	14	5	10	1	43	1
ak	104	34	98	20	4	3	2	2		
mat	90	11	80	5	8	5	2	1		
kar	88	12	88	12						
bak	87	9	9	5	1	1	2	2	75	1
last	80	4	7	2	2	1			77	1
sak	80	16	35	7	45	9				
hap	69	12	61	10	8	2				
kap	66	12	64	11			2	1		
pas	65	16	33	11	11	3	1	1	20	1
haf	63	2					5	1	58	1
bat	58	10	56	9			2	1		
fakt	58	1							58	1
hand	57	7	9	5			2	1	46	1
val	53	10	53	10						
mand	53	9			23	7	30	2		
trans	51	18	51	18						
sat	50	9	32	7	4	1			14	1
past	47	3					1	1	46	2
prak	44	10	42	8	2	2				
gan	42	4			19	3	23	1		
ask	37	2	7	1					30	1
land	36	7	8	3			3	3	25	1
akt	36	8	8	2	8	3	5	2	15	1
askt	36	1							36	1
ab	34	18	30	17			4	1		

\* For explanation of \* marking, see pp. 46 and 126.

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Sillable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
av	34	6	33	5					1	1
tab	33	10	7	5	26	5				
tak	32	7	5	3	8	2	18	1	1	1
taks	32	5	11	3			12	1	9	1
raſſ	32	1	32	1						
handz	32	1							32	1
par	30	9	9	4	14	4	7	1		
mas	30	9	20	6	2	2			8	1
naſſ	29	4	22	2	7	2				
aj	29	8	5	2	24	6				
trakt	28	8	5	2	6	4	17	2		
fam	28	4	28	4						
van	27	9	6	4	20	4			1	1
haps	26	1					26	1		
plan	25	2	3	1					22	1
pard*	25	6			2	1	23	5		
mar	25	6	25	6						
bad	24	3	8	1					16	2
flank	24	2	3	1					21	1
ap	24	12	24	12						
kant	23	3			1	1			22	2
ar*	23	1							23	1
al	23	16	9	8	14	8				
klas	22	6	8	5					14	1
war*	22	8	12	3			4	4	6	1
glad	21	1							21	1
fan	21	7	12	6					6	1
naç	21	4	21	4						
flats	21	1							21	1
sak	21	5	20	4					1	1
han	21	7	21	7						
as	21	12	14	8	7	4				
pat	20	5	20	5						
trav	20	12	17	10	3	2				
nan	20	8	7	4	13	4				
mag	20	9	20	9						
planz	19	1							19	1
par*	19	10	1	1	5	5	3	2	6	2
banjk	19	7	7	4	2	2			10	1
kam	19	5	19	5						
pak	18	5	15	4					3	1
blak	18	6	5	5					13	1
bar	18	8	13	4	5	4				

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<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
gram	18	5	1	1			15	3	2	1
farz*	18	3					18	3		
skwar*	18	3	2	1			8	1	8	1
vans	17	4			5	3	12	1		
aŋ	17	11	16	10	1	1				
task	16	1							16	1
fast	16	5	3	2	1	1	1	1	11	1
lak	16	4	5	3					11	1
dam	15	5	6	3					9	2
gaſſ	15	5	9	4					6	1
gal	15	10	14	9	1	1				
rap	15	4	15	4						
trak	14	5	1	1	9	3			4	1
kat	14	7	12	6					2	1
gap	14	4	12	3					2	1
flat	13	5	6	4					7	1
fakts	13	1							13	1
vast	13	3	3	2					10	1
sam	13	4	13	4						
hab	13	4	10	2	3	2				
paç	12	3			4	1	8	2		
pan	12	11	6	5	5	5				
ban	12	8	8	5	4	3				
klard*	12	1					12	1		
staf	12	2					1	1	11	1
standz	12	2					4	1	8	1
ag	12	7	11	6	1	1				
trast	11	2			1	1	10	1		
graf	11	6			4	4	7	2		
farz*	11	2							11	2
lat	11	1	11	1						
wag	11	2	11	2						
akts	11	1							11	1
	<b>13.453</b>									
<i>a</i>										
ar	642	30	100	29					542	1
part	123	11	11	4	28	4	5	2	79	1
par	107	26	88	22	17	3			2	1
larj	69	5	27	2	2	1	1	1	39	1
far	65	3	1	1			1	1	63	1
gard	47	10	1	1	15	4	26	4	5	1

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<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
kar	43	15	24	12	2	2			17	1
çarj	39	5	12	3			4	1	23	1
farm	35	6	22	5					13	1
bard	31	5			29	3	2	2		
mar	31	11	31	11						
hard	31	7	10	6					21	1
fa	26	3	26	3						
hart	25	8	6	6	1	1			18	1
bar	23	13	13	9	4	3			6	1
start	22	3	13	2					9	1
arm	22	4	15	3					7	1
gar	19	6	15	5			4	1		
art	19	3							14	1
karz	18	1	5	2					18	1
mark	18	6	1	1	4	2	5	2	8	1
lar	18	1	18	1						
parts	17	1							17	1
marks	17	2					9	1	8	1
yardz	16	2					6	1	10	1
har	15	7	14	6	1	1				
çarjd	11	2					3	1	8	1
a	11	2			1	1			10	1
	1,560									
e										
ed	907	384	6	4	7	7	894	373		
en	675	121	581	95	35	21	59	5		
ez	529	202					529	202		
ment	402	86			5	5	389	80	8	1
men	382	46	138	10	44	19	36	16	164	1
ev	308	23	243	13	65	10				
eks	295	108	289	102	6	6				
nes	264	82	38	2	13	6	213	73		
rhem	262	2	34	1					228	1
hwen	246	2	9	1					237	1
est	186	49			27	4	159	45		
self	166	11	12	3	3	1	134	6	17	1
les	166	54	14	5	13	9	86	39	53	1
ent	162	36			26	9	136	27		
sed	161	1							161	1
ver	146	2	146	2			18	3	89	1
get	127	9	16	1	4	4				

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<i>Sillable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
wel	122	4	9	3					113	1
let	121	10	57	3			13	6	51	1
sent	120	13	2	1	19	3	32	7	67	2
den	115	1							115	1
jen	111	28	91	17	15	9	5	2		
nev	110	4	110	4						
e	110	19	64	13	46	6				
ens	106	27			19	7	87	20	3	1
egz	104	30	101	29			5	1	51	1
tel	100	14	34	9	10	3				
prez	99	8	99	8	20	10				
sen	99	37	79	27						
ek	99	29	82	24	17	5				
ments	97	42					97	42		
es	94	28	69	17	7	5	18	6	24	1
ten	87	26	21	8	42	17			48	1
set	86	14	23	6	2	2	13	5	6	1
em	86	38	73	33	2	2	5	2		
dent	82	18			15	4	67	14		
mem	80	11	46	6	34	5			27	2
red	79	7	24	3	27	1	1	1		
genst	73	1					73	1		
lek	73	20	1	1	72	19				
fekt	70	12			23	6	47	6		
ses	69	12			37	9	32	3	4	1
rek	69	31	44	22	21	8			68	1
yet	68	1								
jetk	66	11			14	6	52	5		
sev	64	7	64	7						
el	63	32	16	8	18	14	29	10		
gen	62	1					62	1	23	1
yes	57	3	34	2					23	1
sek	56	9	54	7	2	2				
hed	56	12	18	6	1	1	10	4	27	1
pen	55	27	13	10	38	16			4	1
selvz	55	3					55	3		
pres	53	18	10	4	18	11	12	2	13	1
best	52	1							52	1
tem	52	21	21	10	11	9	20	2		
sez	52	1							50	1
went	50	1							48	1
left	48	1							2	
tend	46	17	2	2	26	9	16	5		

Sillable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
ker	46	8	23	7					23	I
kwes	45	5	44	4	I	I				
hev	45	7	45	7					44	I
nekst	44	I								
ej	44	8	11	4	I	I	29	2	3	I
sel	43	14	23	7	2	2	7	3	11	2
end	43	4					10	3	33	I
dens	42	14	2	I	I	I	39	12		
sept	41	6			10	4	31	2		
rekt	41	11			20	6	21	5		
send	40	6	5	I	6	3	I	I	28	I
bet	38	3	32	I			I	I	5	I
tent	38	15			6	4	27	10	5	I
gef	38	2			38	2				
rep	38	12	37	11	I	I				
ber	36	11	16	7	I	I			19	3
dren	36	2					36	2		
pekt	35	9			16	5	19	4		
spekt	35	8			27	6	8	2		
fel	35	5	19	3	2	I			14	I
speſ	35	5	35	5					19	I
sens	35	9	2	I	3	2	11	5	19	I
dem	34	12	21	7	13	5			14	2
fer	34	9	7	3	13	4			18	I
rest	34	9	5	3	5	2	6	3	I	I
jest	33	4			9	I	23	2		
held	33	4					4	3	29	I
dred	32	8	9	5	I	I	22	2		
ves	32	8	19	3	13	5				
sep	32	17	15	5	17	12				
et	32	16			5	4	27	12		
twen	31	2	31	2						
ven	31	16	11	5	20	11				
hwef	31	I	31	I						
pres	30	7	17	2	13	5				
ter	30	10	27	7	2	2				
sents	30	I							30	I
ef	30	3	29	2	I	I				
lekt	29	11			14	6	15	5	I	I
lent	29	8			I	I	27	6	25	I
help	29	3	4	2			16	2		
dres	28	7	4	2	6	2			2	I

\* Should be tar 1/1.

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Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
vest	28	8			19	5	8	2	1	1
vent	28	9			11	6	17	3		
zent	28	7			19	4	9	3		
çer	28	7	15	6			21	6	13	1
prest	27	7							6	1
fen	27	3			27	3				
vel	27	10	2	2	25	8			1	1
sted	27	7	9	5			17	1	1	1
res	27	8	7	4	3	2	17	2		
elz	27	8					27	8		
fens	26	7	1	1	4	2	19	3	2	1
meh	26	2	26	2					15	1
west	26	5	6	2					20	1
met	25	5	3	2	1	1	1	1	11	2
her	25	10	9	5	5	3			16	1
els	25	3	9	2						
fend	24	6			19	5	5	1		
per	23	12	6	4	17	8				
tens	23	6			1	1	22	5		
kept	23	2					1	1	22	1
frend	23	4	5	2	1	1			17	1
kred	22	7	11	1	7	5	4	1		
ref	22	8	22	8						
des	21	11	19	9	2	2				
den	21	12	2	2	19	10				
ket	21	7	1	1	3	3	17	3	18	1
freß	21	4			2	2	1	1		
fek	21	9			21	9			21	2
çek	21	2								
jec	21	12			21	12				
lem	21	3	3	2			18	1		
pend	20	9	5	1	11	6	4	2		
test	20	8	3	2	5	3	2	2	10	1
spek	20	11	7	5	13	6				
streñh	20	2	1	1					19	1
nent	20	6					20	6		
mes	20	7	10	4	7	2			3	1
rev	20	11	18	9	2	2				
reg	19	10	17	8	2	2				
tempt	18	5	2	1	7	2	9	2		
mend	18	9	1	1	13	6	4	2		
er	18	10	11	6			5	2	2	2
plez	17	2	17	2						

## Appendix C

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Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
dek	17	9	16	8	1	1				
kwest	17	5			3	2	10	2	4	1
frendz	17	1							17	1
mez	17	4	17	4						
eh	17	13					17	13		
te	16	8	5	2	11	6				
def	16	6	15	5	1	1				
gres	16	5			10	4	6	1		
felt	16	2					1	1	15	1
net	16	8	4	2			3	3	4	1
med	16	9	16	9						
ents	16	8					16	8		
ded	15	4	11	3					4	1
se	15	3	2	1	13	2				
sel	15	4	8	3					7	1
selz	15	1							15	1
jes	15	8	4	2	11	6				
nek	15	4	1	1	11	2			3	1
ren	15	5	7	2			8	3		
wed	15	3	15	3						
bred	14	3	1	1					13	2
kwent	14	7			7	3	7	4		
fed	14	4	9	1	2	2			3	1
step	14	1							14	1
sel	14	6	6	1	8	5				
jeckts	14	5					14	5		
twelv	13	1							13	1
tes	13	4	13	4						
dev	13	5	11	4	2	1				
dents	13	5					13	5		
gets	13	2					1	1	12	1
spes	13	5	13	5						
jent	13	8			2	2	11	6		
jents	13	3					13	3		
lej	13	6	11	4	1	1			1	1
pel	12	6			3	2	9	4		
treng	12	2	7	1					5	1
dwel	12	7	7	6					5	1
spent	12	1							12	1
zen	12	3			12	3				
Sens	12	3			1	1	11	2		
mens	12	2					12	2		
rez	12	7	12	7						

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<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
rej	12	6	12	6						
hens	12	2	3	1					9	1
hēlh	12	4	4	2	1	1			7	1
ets	12	6					12	6		
peſ	11	2					11	2		
bed	11	2	2	1						
beg	11	2	1	1					9	1
tekt	11	4					4	2		
del	11	6	8	3	3	3			10	1
gest	11	4								
splen	11	3			11	3			8	2
zes	11	5					6	4		
ſer	11	4	3	3					8	1
nest	11	6					3	2		
welh	11	3	1	1					1	1
ests	11	2							6	1
	<i>12,076</i>									
<i>e</i>										
ſte	478	1							478	1
e	464	72	88	21	163	49			213	2
ſter	323	2							323	2
de	266	25	19	6	15	11	131	7	101	1
wē	211	17	3	3	2	1	99	11	107	2
mē	210	14	17	6	33	7			160	1
ſe	207	17	36	5	59	10	1	1	111	1
nē	200	41	123	13	75	27			2	1
grēt	181	6	47	5					134	1
mēd	179	5	2	1					173	2
tēk	171	19	68	2	5	4	12	12	86	1
tē	160	41	18	4	142	37				
lē	154	45	70	15	58	27	17	2	9	1
mēk	141	6	35	4	1	1			105	1
pē	140	28	75	17	22	10			43	1
rē	99	39	17	7	81	31	1	1		
et	97	49	6	3	50	33	18	12	23	1
kē	89	41	15	5	74	36				
ſtet	89	6	53	5					36	1
kēm	82	2							71	1
plēs	81	9	21	2	6	4	2	2	52	1
dez	78	5					4	2	74	3
kēs	71	2	19	1					52	1

## Appendix C

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Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
lēt	70	30	22	3	23	18	13	8	12	1
sēm	67	1							67	1
mēn	59	12	28	6	3	2	12	3	16	1
bē	54	18	46	13	3	3	2	1	3	1
trē	54	15	4	2	49	12	1	1		
vē	49	21	21	6	22	12	6	3		
sēv	49	3	16	2					33	1
nēm	48	3	8	2					40	1
plēn	45	10	11	3	1	1	15	4	18	2
tēn	43	16			16	8	27	8		
fēs	42	4	11	2	1	1			30	1
zē	40	10			39	9	1	1		
rē	39	6	34	5					5	1
plē	38	10	17	7	3	2			18	1
stē	38	9	15	7					23	2
trēn	37	3	18	2					19	1
gēv	36	1							36	1
fē	35	8	34	7	1	1				
rēnj	35	6			11	3	4	2	20	1
wēt	35	6	10	2	1	1	1	1	23	2
kēt	33	18			27	14	6	4		
sef	33	8	17	6			1	1	15	1
fēl	32	4	19	3					13	1
rēt	32	11	1	1	7	5	6	4	18	1
tēnd	31	7					31	7		
gē	31	15	5	3	24	11			2	1
wēz	30	8					15	7	15	1
gēnj	29	5	6	2	1	1	1	1	21	1
strēt	28	9	12	5	3	1	2	2	11	1
strēnj	28	5	11	4					17	1
mēks	26	1							26	1
dēn	24	6	21	4	3	2				
dēt	23	4	3	1			6	2	14	1
brek	22	4			6	2			16	2
tēl	21	6					11	2		
fēh	21	5	13	3	1	1	7	2	7	1
vel	21	5			16	2	4	2	1	1
sel	21	7	8	3	1	1	3	1	9	2
nēt	21	16			15	10	6	6		
ej	21	2	2	1						
tēt	20	8			5	4	15	4		
ēr	20	4	20	4					2	1
plēnz	19	6					17	5		

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
pēn	19	4	3	1			12	2	4	1
pēnt	19	6	18	5					1	1
ēd	19	4	2	1			4	2	13	1
ped	18	3					2	2	16	1
sēvd	17	1							17	1
mēt	16	7			5	4	11	3		
red	16	4	2	2			6	1	8	1
lēd	16	3	1	1			2	1	13	1
trēd	15	5	4	4			3	2	11	1
gēnjd	15	3							12	1
wēst	15	5	6	3			2	2	9	2
plēst	14	3							12	1
tēks	14	2					4	1	10	1
klēm	14	3			1	1	1	1	12	1
nēmz	14	1							14	1
pēj	13	2	5	1					8	1
trēnz	13	1							13	1
grē	13	10	6	6	2	2			5	2
gēt	13	10	1	1	4	4	6	4	2	1
slēv	13	2	8	1					5	1
mēl	13	4	1	1			1	1	11	2
trēt	12	10			7	5	4	4	1	1
vēd	12	8			7	5	5	3		
stēj	12	1							12	1
ſēp	12	2	1	1					11	1
bēs	11	4	5	2					6	2
gējd	11	1					11	1		
gēnd	11	1							11	1
frēd	11	1							11	1
hēt	11	2	2	1					9	1
rēs	11	3	2	2					9	1
rēz	11	4	4	3					7	1
wēj	11	3	7	2					4	1
<hr/>										
i										
in	3284	356	1087	329	14	11	66	14	2117	2
i	3217	819	281	77	1676	547	1260	195	.	.
ig	2353	760			21	13	2332	747		
ri	1625	330	823	160	323	103	479	67		
it	1416	52	26	1	54	25	120	25	1216	1
iz	1286	22	11	1			62	20	1213	1

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## Appendix C

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Syllable	Total			Initial		Medial		Final		Word	
	Oc	It		Oc	It	Oc	It	Oc	It	Oc	It
li	1201	320				44	21	1157	299		
wid	841	12	104	8		4	1	6	2	727	1
di	835	278	673	211		146	59	16	8		
ti	830	227		1	1	241	92	588	134		
bi	621	61	603	50		11	8	7	3		
r̄is	572	1								572	1
hiz	517	1								517	1
wil	470	7	23	4		2	2			445	1
hwic	454	1								454	1
bin	329	2								329	2
its	293	12						47	10	246	2
him	285	2	51	1						234	1
if	276	4				7	2	6	1	263	1
si	263	96	61	20	106	42		96	34		
dis	261	106	255	101		4	4	2	1		
tri	206	32		8	2	79	22	119	8		
ni	187	68	18	4	106	47		63	17		
is	181	43			130	35		51	8		
lit	152	14	120	6		27	4	4	3		
im	141	70	134	65		6	4	1	1		
ij	141	50				29	15	112	35		
tiv	136	57				29	14	107	43		
did	134	5	23	1		2	1	9	2	100	1
pri	130	51	111	38	19	13					
mi	130	35		9	6	39	23	82	6		
hig	129	4						85	3	44	1
mit	124	21		1	1	86	12	37	8		
tin	122	24				69	16	49	7	4	1
giv	121	6		59	2	2	2	3	1	57	1
mil	117	11	99	8		7	2			11	1
tiz	115	40		1	1			114	39		†
biz	114	6	104	4				10	2		
til	108	18				29	11	60	6	19	1
sit	104	12		86	9			4	2	14	1
ik	101	50				4	3	97	47		
fiſ	98	25	10	6	76	18				12	1
hingk	93	3	19	1		1	1			73	1
id	86	24		2	2	11	3	73	19		
iſ	84	36	34	4	23	18		27	14		
min	83	20	42	10	37	9		4	1		
bil	82	25	25	4	42	20				15	1
hingz	82	1				76	9			82	1
diſ	81	11		5	2						

† tiz 20/1 should be added here—see note on page 162.

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Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
ſip	77	24	33	7			26	16	18	1
lik	76	7	2	2	1	1	72	3	1	1
liv	71	9	25	3	26	5			20	1
ſis	70	20	30	11	15	4	25	5		
wiz	69	2	7	1			62	1		
tik	68	30	4	4	34	8	30	18		
ſiv	68	21	18	4	4	4	46	13		
mis	68	27	50	23	3	3			15	1
tis	65	22			23	16	22	5	20	1
ſim	65	12	65	12						
dif	63	13	58	11	5	2				
fi	58	26	12	6	42	17	4	3		
ſtil	58	1							58	1
ſid	58	13			57	12	1	1		
ziſ	57	9			57	9				
big	55	4	4	2	1	1			50	1
viſ	55	4	1	1	6	2	48	1		
bli	54	27					54	27		
igz	53	36					53	36		
sins	52	1							52	1
win	50	7	33	6					17	1
siks	49	3	12	2					37	1
wim	48	2	48	2						
ist	48	19			16	3	32	16		
bild	47	8	36	5	1	1	1	1	9	1
vi	44	16	7	4	29	10	8	2		
sti	44	15	1	1	43	14				
list	43	6	1	1	6	2	15	2	21	1
pi	42	20	10	5	32	15				
ſic	41	2	41	2						
ji	40	18	1	1	27	11	12	6		
viz	39	7	4	1	35	6				
ſil	39	3	38	2	1	1				
gin	38	3			28	2	10	1		
lim	35	11	23	4	12	7				
pik	34	4	30	3					4	1
vik	32	6	29	4	3	2				
pin	30	3			28	2			2	1
din	30	1	30	1						
nit	30	12	3	1	8	5	19	6		
niſ	30	10			21	8	9	2		
lib	30	10	23	6	7	4			28	1
wiſ	30	3	2	2						

† Should be tiz 20/1, on page 161.

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Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
izm	30	12					29	11		
fig	29	3	29	3					1	1
fif	28	2	28	2						
sig	28	12	24	10	4	2				
sin	28	15	21	10	4	3	3	2		
lij	28	18	1	1	2	2	25	15		
sil	28	9	9	4	8	2	11	3		
prit	27	4	27	4						
fit	27	10	7	3	1	1	12	5	7	1
sips	27	6					6	4	21	2
nin	27	4					27	4		
miß	27	9	2	2	25	7				
bilt	26	2					2	1	24	1
trik	26	3					25	2	1	1
spir	26	6	21	3	5	3				
riz	26	6	1	1			25	5		
lij	26	8			20	6	6	2		
his	26	7	25	6	1	1				
il	25	8	6	2	2	1	10	4	7	1
pli	24	10	1	1	10	8	13	1		
triz	24	6					24	6		
brig	23	2	4	1					19	
tivz	23	11					23	11		
diz	22	10	16	7			6	3		
rit	22	6	14	1	1	1	6	3	1	1
si	21	15			20	14	1	1		
jin	21	5	3	2			18	3		
mid	21	7	16	4			4	2	1	1
wit	21	9	17	6	2	2			2	1
ists	21	10					21	10		
prin	20	2	20	2						
bit	20	6	10	4			1	1	9	1
tij	20	4			1	1	19	3		
fin	20	8	14	4	6	4				
milk	20	2	1	1					19	1
sist	19	9			7	5	12	4		
sinj	19	5	18	4					1	1
zi	19	14			14	10	5	4		
krit	19	8	18	7	1	1				
iſt	19	10					19	10		
kwik	18	5	15	4					3	1
viz	18	8	16	6	2	2				
skrip	18	8			18	8				

Sillable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
miz	18	6	5	2			13	4		
lis	18	6	16	4	1	1	1	1		
trib	17	8	1	1	16	7				
vij	17	4	2	1	15	3				
vil	17	4	14	2	2	1	1			
çis	17	5			II	4	6	1		
rid	17	9	4	3	1	1	4	4	8	1
blin	16	8					16	8		
biʃ	16	5			16	.5				
tiʃ	16	8	2	1	14	7				
liʃ	16	8			II	6	5	2		
kwip	15	2			14	1	1	1		
kil	15	4	12	3					3	1
spriŋ	15	4	1	1			3	2	11	1
nif	15	6	1	1	14	5				
niz	15	7					15	7		
priz	14	4	14	4						
driŋk	14	3	7	2					7	1
ki	14	8			6	4	8	4		
fil	14	8	6	3	3	3	1	1	4	1
spi	14	5	5	3	9	2				
siz	14	9	1	1			13	8		
riŋ	14	3	2	2					12	1
hi	14	7	11	4	3	3				
iv	14	7					14	7		
dik	13	8	8	4	5	4			8	1
kiŋ	13	2	5	1					13	1
givz	13	1								
fiz	13	3	12	2			I	I		
vit	13	3	2	2			11	I		
di	13	5			7	2	6	3		
sik	13	6	2	2			4	3	7	1
nid	13	3					13	3		
driv	12	1	12	1	3	2	5	2	2	1
kwit	12	7	2	2			1	1	11	1
fild	12	2								
strikt	12	5	9	2	2	2	1	1		
riç	12	4	2	2	3	1			7	1
rij	12	7	2	2	9	4			1	1
brij	11	3	1	1			I	I	9	1
tif	11	6			10	5	I	I		
hi	11	4	3	2			8	2		
skil	11	2			I	I			10	1
livd	11	2					I	I	10	1

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Sillable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
t										
bi	967	8	111	3	2	2	6	1	848	2
hi	696	4	14	3					682	1
wi	537	4	7	2	1	1			529	1
mi	306	13	14	7	35	5			257	1
pi	238	20	197	7	41	13				
si	200	23	70	19	2	2			128	2
ri	193	51	186	46	2	2	1	1	4	2
fr	188	1							188	1
i	186	19	173	12	11	5	2	2		
ditz	152	1							152	1
hir	147	11	15	8	2	2			130	1
ytrz	93	1							93	1
hrt	75	1							75	1
pis	74	7	10	5					64	2
liv	71	8	6	2	3	3	44	2	18	1
dr	63	10	10	5	53	5				
mit	63	5	27	3					36	2
lc	63	1							63	1
nir	61	8	30	4	2	1	6	2	23	1
twin	60	1					60	1		
ytr	60	2	1	1					59	1
dir	58	4	10	3					48	1
iz	56	10	39	4	2	2	13	2	2	2
stil	51	3	1	1					50	2
sid	51	17	1	1	29	10	19	5	2	1
fri	50	6	18	5					32	1
fil	48	2	16	1					32	1
sin	48	5	4	2			3	1	41	2
nid	48	5	16	4					32	1
kip	47	8	10	3	5	4			32	1
mfnz	46	1							46	1
fit	44	5			8	2	7	1	29	2
rid	43	5	18	3	1	1			24	1
ti	42	9	1	1	15	5	4	2	22	1
wik	42	8	13	6					29	2
plit	41	6			11	4	30	2		
hwit	38	3	4	1			2	1	32	1
pri	36	18	27	12	8	5			1	1
kltr	34	5	11	4					23	1
min	34	6	10	4					24	2
spik	31	4	14	3					17	1
grt	30	10			15	7	15	3		

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
sɪvd	30	4					30	4		
sɪmz	30	1							30	1
mɪr	30	2	18	1					12	1
kṛts	28	5	1	1	15	2	12	2		
tɪn	27	9					27	9		
dɪl	27	5	17	4					10	1
ʃɪn	27	2			9	1	18	1		
lɪd	27	5	24	4					3	1
lv	27	5	25	3			1	1		
fɪ	26	10	24	8	1	1			1	1
sɪmd	26	1							26	1
dɪd	25	2					24	1		
rɪç	24	3	7	2					17	1
fɪld	23	3					3	2	20	1
nɪ	23	6	18	4			4	1		
ɪt	23	4	15	3					8	1
lɪ	22	11	18	8	4	3				
lɪst	22	2					3	1	19	1
fɪr	21	5	2	1	2	1	4	2	13	1
strɪt	21	1							21	1
nɪdz	21	1							21	1
hɪ	20	9	18	8	2	1				
sɪm	20	2							20	2
çɪf	20	2	6	1					14	1
tɪç	19	5	10	4					9	1
dɪp	19	5	8	4					11	1
sɪt	19	3	2	1			8	1	9	1
sɪz	19	6	1	1			2	2	16	3
çɪp	19	4	11	3					8	1
kɪln	18	5	5	3			4	1	9	1
swɪt	18	5	7	4					11	1
plɪtz	17	2	2	1					15	1
stɪk	17	2	8	1					9	1
stv	17	6			3	3	14	3		
lɪs	17	4			3	1	12	2	2	1
plɪzd	16	1							16	1
wɪks	16	2							16	2
krist	15	1					15	1		
pɪr	14	5			2	2	11	2		
pɪrd	14	2					14	2		
trɪt	14	6	11	4			1	1		
trim	14	2			6	1	8	1		
krit	14	4			1	1	13	3		

## Appendix C

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Syllable	Total Oc It		Initial Oc It		Medial Oc It		Final Oc It		Word Oc It		
spic	13	2		5	1				8	1	
rict	13	1							13	1	
rin	13	3						13	3		
rir	13	3		1	1			6	1	6	1
ist	13	4		8	2			1	1	4	1
bit	12	4		8	2					4	2
tri	12	3		3	2					9	1
krim	12	1								12	1
spid	12	5		5	4					7	1
krf	11	6		8	5			3	1		
griz	11	2						11	2		
fildz	11	2						1	1	10	1
siz	11	5		1	1			2	2	7	1
hi	11	3		1	1			10	2		
livz	11	2						8	1	3	1
irz	11	2						2	1	9	1
	<u>6,507</u>										
ə											
ev	4001	3						3	2	3998	1
wex	850	2		11	1					839	1
en	816	18		39	11					643	1
net	596	4		5	2			2	1	589	1
ken	556	224		533	206			23	18		
frem	433	1								433	1
hwet	277	4		17	2					253	1
kem	225	89		203	78			22	11		
pes	194	11		138	6			50	5		
ke	166	51		163	49			3	2		
ə	155	37		144	30			11	7		
əf	96	13		93	12			3	1		
əb	95	32		95	32						
əp	88	20		73	16			15	4		
fer	80	19		55	17			25	2		
bed	67	10		41	5			26	5		
et	67	4						9	3		
prep	66	8		57	6			9	2		
fel	61	5		61	5						
get	55	2						5	1		
prob	45	6		44	5			1	1		
spen	45	8		1	1			44	7		
med	38	11		36	9			2	2		



## Appendix C

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Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
<i>ā</i>										
tēr	1136	23	96	19	3	2	2	1	1035	1
ēl	679	15	210	12	1	1	2	1	466	1
ēr	602	28	139	22	5	5			458	1
wēr	221	3	7	2					214	1
lēg	147	12	14	4	3	3	36	4	94	1
kāz	145	4	15	2			98	1	32	1
ēl	72	4	2	2			27	1	43	1
wānt	71	3	27	2					44	1
hāl	68	2	1	1					67	1
ā	61	22	56	18	4	3			1	1
wā	55	8	54	7	1	1				
smēl	54	3	8	2					46	1
kāl	47	6	6	3	1	1	2	1	38	1
lā	47	8	13	7					34	1
nēr	46	3	12	1	6	1			28	1
mērn	46	2	46	2						
sē	43	3	1	1			1	1	41	1
fērm	38	10			4	3	16	6	18	1
lēs	35	2	15	1					20	1
pēr	34	3			34	3				
kēr	34	13	27	9	7	4				
kēld	34	2					2	1	32	1
lērl	33	1							33	1
rēj	32	1							32	1
lērs	31	4	19	3					12	1
kērd	28	7			27	6			1	1
fēl	28	6	12	2	1	1	4	2	11	1
lēsl	28	1							28	1
kros	25	5	3	2			15	2	7	1
kwēr	24	3	14	2	10	1				
tēk	23	2	3	1					20	1
strēj	23	5	9	4					14	1
sērt	21	2	1	1					20	1
Sērt	21	5	12	4					9	1
gēll	20	1							20	1
fērmēd	20	5					14	4	6	1
dēr	18	7	8	4	7	2			3	1
wērd	18	7	1	1	3	3	5	2	9	1
nērh	16	4	5	3					11	1
lēz	16	1							16	1
ēt	16	1							16	1
hrēd	14	2					11	1	3	1

Syllable	Total Oc It		Initial Oc It		Medial Oc It		Final Oc It		Word Oc It		
drən	14	2					1	1	13	1	
kərn	14	3		3	2				11	1	
tət	12	1							12	1	
wənts	12	1							12	1	
bət	11	1							11	1	
bərn	11	2					1	1	10	1	
kət	11	1							11	1	
mər	11	6		5	4	6	2				
wərm	11	5		4	2	1	1	1	5	1	
	<b>4,277</b>										
<i>v</i>											
but	517	9		9	5	1	1		505	2	
vn	466	164		453	155	13	9				
wvn	412	8		27	5			2	1	383	2
.up	333	2		129	1					204	1
wur*	328	12		20	8	3	3			305	1
vs	282	74				35	19	124	54	123	1
sum	277	19		108	12			6	5	163	2
kum	270	26		72	9	32	12	43	4	123	1
vnf	258	4		200	3	58	1				
hur*	233	4			II	3				222	1
pur*	194	33		184	28	10	5			I	I
sur*	178	37		167	27	9	8	1	1		
must	165	1								165	1
sug	132	1								132	1
furst*	131	1								131	1
wurk*	124	13		34	8			7	4	83	1
su	120	27		116	23	4	4				
sub	120	3b		111	34	9	4				
kun	113	6		113	6						
muc	107	2						3	1	104	1
wurld*	106	2		3	1					103	1
just	100	10		3	1	6	5	5	3	86	1
pub	83	9		79	7	4	2				
fur*	81	23		65	14	7	4			I	I
guv	78	9		78	9						
duz	69	4		16	3					53	1
nuh	61	1		61	1						
mun	60	1		50	1						
wuns	59	1								59	1

\* For explanation of \* marking, see pp. 46 and 126.

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Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
num	58	7	53	4	3	1	2	2		
tur*	57	32	7	7	48	23	2	2		
gun	50	4	6	2			6	1	14	1
vr*	53	11	51	9	1	1			1	1
frunt	51	5			3	2	2	2	46	1
kuv	49	17	20	8	29	9				
dus	18	7			41	5	7	2		
struk	48	11	1	1	39	9			8	1
turn*	47	8	7	2	5	3	18	2	17	1
suk	47	10	45	9					2	1
mug	46	1					46	1		
kur*	45	20	27	9	13	9	5	2		
nuf	44	1					44	1		
luv	43	5	11	4					32	1
yug	43	3	2	2					41	1
turnd*	41	3					11	2	30	1
dun	40	1							40	1
kul	40	13	17	7	23	6				
trub	37	6	37	6						
hur*	37	8	37	8						
zult	37	3			9	2	28	1		
jus	37	12	31	7	4	3	2	2		
mus	30	12	12	7	2	1	22	4		
munhs	35	2							35	2
vur*	34	17	11	7	23	10	9	2	23	1
kumz	32	3							32	1
gurl*	32	1								
trust	31	9	8	4	2	2	4	2	17	1
musf	31	6	30	5	1	1				
run	31	4	12	2			1	1	18	1
hurd*	31	5	2	2			4	1	25	2
mur*	30	14	18	10	10	3	2	1		
munh	28	2	4	1					24	1
kus	27	11	17	6	3	3	7	2		
lus	27	16			8	5	19	11		
hun	26	4	26	4						
buv	25	1					25	1		
um	25	15	4	2			20	12	1	1
sun	24	7	10	5					14	2
kut	23	4	5	3					18	1
gunz	23	1							23	1
sug	23	6	23	6						
juj	23	4	14	3					9	1

Sillable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
wurh*	23	2	I	I					22	I
duk	22	12			21	11			I	I
hurd*	22	I							22	I
ut	22	7	21	6			I	I		
ukts	21	I					21	I		
tug	20	4	7	3					13	I
zurv*	20	7			6	3	14	4		
strukt	19	7			16	5	3	2		
sus	19	10	18	9			I	I		
wurd*	19	I							19	I
gurlz*	18	I							18	I
furm*	18	7	2	2	I	I	5	3	10	I
wurdz*	18	I							18	I
turmz*	17	I							17	I
flus	17	I							17	I
nun	17	I							17	1
tunz	16	I							16	I
fun	16	5	12	4					4	I
suf	16	3	16	3						
lurnd*	16	2					I	I	15	I
ul	16	7	14	5	2	2				
dukt	15	3			5	2	10	I		
jur*	15	5	15	5						
lurn*	15	2	2	I					13	I
surv*	14	3	I	I			2	I	11	I
surç*	14	7	10	4	I	I			2	I
surn*	14	2			8	I	6	I		
mul	14	7	12	5	2	2				
brud*	13	3	13	3						
wurks*	13	2					I	I	12	I
urh*	13	2	2	I					11	I
purts*	12	I					12	I		
blud	12	4	5	3					7	I
burn*	12	3	5	I	2	I			5	I
kup	12	3	8	2					4	I
vurt*	12	9			9	6	3	3		
sump	12	3	I	I	11	2				
rub	12	3	10	2					2	I
bur*	11	7	10	6					I	I
tus	11	4					11	4		
fund	11	I							11	I
vurs*	11	5	4	I	I	I	5	2	I	I
strug	11	3	11	3						

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<i>Silable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
sən	40	7			22	4	18	3		
yənz	38	6					38	6		
təns	36	7					36	7		
kə	36	20	22	8	14	12				
jərz	36	5					36	5		
alz	36	1					36	11		
çən	35	7			2	2	33	5		
əd	35	3					35	3		
dərz	33	9					33	9		
gər	33	11			3	2	29	8		
jər	30	10			8	5	22	5		
tərd	29	13					29	13		
mər	29	8			12	2	17	6		
dərd	27	11					27	11		
gən	27	6			26	5	1	1		
sərz	27	5					27	5		
zənd	27	1					27	1		
nə	27	18			27	18				
nər	27	9			11	5	16	4		
ənd	26	2					26	2		
rəl	25	8			9	3	16	5		
ət	25	7			14	1	11	6		
də	24	11			16	7	8	4		
dəm	24	4					24	4		
fə	24	10	18	7	6	3				
ʒən	24	10			2	2	22	8		
fər	23	8			19	5	4	3		
nəns	22	6			2	2	20	4		
stəns	21	3			6	1	15	2		
yər	21	5			3	1	18	4		
ənt	21	14			4	4	17	10		
ərt	21	1					21	1		
trəl	20	2					20	2		
kwəl	20	2			10	1	10	1		
məl	20	6					19	5		
stənt	18	4			1	1				
əz	18	2			9	2	9	2		
çənz	17	2					18	2		
bərd	16	5					17	2		
fərt	16	4			5	2	16	5		
vəl	16	5			1	1	11	2		
sə	16	11			5	4	15	4		
jən	15	2					15	2		

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Sillable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
la	15	10								
apt	15	4								
tra	14	8								
tam	14	4								
gal	14	4								
sənz	14	2								
pərz	13	3								
tən	13	5								
zəndz	13	1								
hən	12	1								
və	12	8								
hər	11	1								
	<b>12,350</b>									
<i>a</i>										
o	707	186	328	50	247	114	73	19	59	3
no	478	24	42	14	11	6	2	2	423	2
so	446	35	37	15	104	18			305	2
on	276	6	200	4			1	1	75	1
for	228	24	34	18	1	1	157	3	36	2
pro	226	84	210	75	12	8			4	1
mor	221	4	7	1			2	2	212	1
to	179	46	46	7	125	35	8	4		
go	179	12	61	2	5	5	40	4	73	1
most	155	7	2	1			48	5	105	1
po	153	39	100	15	52	23	1	1		
mo	116	39	75	18	40	20	1	1		
fləz	104	1							104	1
old	84	4	9	3					75	1
port	77	17	3	3	25	9	46	4	63	1
hom	69	6	6	5					67	1
dont	67	1							50	4
hol	61	8	10	3			19	2	41	2
flə	60	4							16	1
lo	60	21	28	14	3	2	13	4	25	1
fors	54	9	1	1	31	6	4	1	23	1
sol	58	8	52	7					6	1
hold	51	13	14	3	5	3	10	6	22	1
lon	50	4	4	2			21	1	25	1
ſc	48	6	16	4					32	2
por	47	17	17	8	24	7	7	1	6	2
kors	46	4	2	2					37	1

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
boh	45	I							45	I
non	45	2					12	I	33	I
ro	44	20	7	7	21	9	15	3	1	I
ko	42	27	29	16	8	7	5	4		
hop	41	6	11	5					30	I
rod	37	5	I	I	I	I	9	I	26	2
poz	35	II			4	4	30	6	I	I
told	34	2					I	I	33	I
kol	34	2					I	I	33	I
noz	32	2							32	2
tro	30	0	I	I	29	9				
ports	29	4					26	3	3	I
pozd	28	7					28	7		
not	28	4	4	3					24	I
do	27	12	12	7	2	2	I3	3		
forst	27	3					I8	2	9	I
trol	25	5			7	3	I8	2		
vot	25	6	5	2	II	2	I	I	8	I
forh	24	5	5	2			3	I	16	2
oz	24	9					24	9		
stor	23	5	9	2	2	I	2	I	10	I
rodz	21	2					I1	I	10	I
kort	20	I							20	I
bord	19	5	I	I			2	2	16	2
od	19	4					I9	4		
klos	19	3	6	2					I3	I
klozd	19	3					I4	2	5	I
kold	18	2	I	I					I7	I
roz	18	3					8	2	10	I
post	17	8	I4	7					3	I
bro	17	5	I5	3	2	2				
wont	17	I							I7	I
gro	15	7	II	6					4	I
gron	15	4	I	I			I	I	I3	2
gold	15	2	3	I					I2	I
sold	15	I							I5	I
zors	15	2					9	I	6	I
bor	13	3	2	2					I1	I
goz	13	3							I1	I
hro	13	3	3	I			2	2	I1	I
kloz	12	6	5	2	4	2	2	I	8	I
glo	12	5	II	4			I	I	2	I
spok	12	2	5	I					I	I

## *Appendix C*

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178 *Relativ Frequency of English Speech Sounds*

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
<i>ü</i>										
tü	3318	10			2	1	189	6	3127	3
yü	862	23	52	18	9	3	26	1	775	1
hü	252	3	4	2					248	1
dü	239	2	36	1					203	1
yür	230	2							230	2
ħru	96	3	14	1					82	2
yūrz	56	1							56	1
yūz	54	6	19	4			3	1	32	1
ſūd	53	1							53	1
ſūr	53	11	12	2	14	6	6	2	21	1
sūn	48	2	6	1					42	1
yūs	48	7	17	4			3	2	28	1
yūzd	45	1							45	1
hūz	42	1							42	1
mūv	38	8	19	4	4	2	4	1	11	1
nūn	37	3					32	2	5	1
trū	30	1							30	1
hūm	28	1							28	1
trūps	26	1							26	1
skūl	25	3	2	2					23	1
pqr	24	2	1	1					23	1
rūm	24	4	1	1			2	2	21	1
kłūd	23	7			15	4	8	3		
prūv	21	9	1	1	12	6	3	1	5	1
trūh	21	1							21	1
stūpt	19	1							19	1
mūvd	18	2					4	1	14	1
jū	16	6	15	5	1	1				
kłū	14	7			14	7				
rūl	13	3	7	2					6	1
yūn	13	3	12	2	1	1				
tūr	12	8	9	6			1	1	2	1
prūvd	11	3					7	2	4	1
błū	11	1							11	1
lūz	11	3	3	2					8	1
wūnd	11	3	9	2					2	1
<hr/>										
	<i>5,676</i>									
<i>ai</i>										
aur	378	4	21	2					357	2
aut	332	29	43	25			85	3	204	1

## *Appendix C*

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## Appendix C

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Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
lánz	27	I					8	3	27	I
sáz	26	8	I	I	+ 3				13	I
láz	26	5					17	3	8	I
wáz	26	6	3	I			10	4	13	I
fán	25	8	2	2	3	2	3	3	17	I
strák	25	2	11	I					14	I
tá	24	9	13	6	9	I	I	I	I	I
hánd	24	I					24	I		
plád	23	4					23	4		
kwárd	23	3					23	3		
fár	23	4		8	3				15	I
zár	23	5			10	4	13	I		
dá	22	16	17	14	I	I			4	I
ál	22	2							22	2
pláz	20	4					20	4		
áv	20	I							20	I
vás	17	5			2	2	7	2	8	I
sádz	17	3					17	3		
hwát	17	2	I	I					16	I
nán	16	4	7	3					9	I
mán	16	3	8	2					8	I
táz	15	10			9	6	5	3	I	I
flá	15	4	8	3					7	I
láš	15	2			2	I	13	I		
rávd	15	2					15	2		
práz	14	3			3	I	11	2		
táp	14	3	2	2					12	I
krá	14	4	9	3					5	I
rád	14	4	6	3					8	I
ráz	14	8	3	I	3	3	5	3	3	I
wád	14	3	3	2					11	I
wár	14	4	6	3					8	I
ád	14	2							14	2
váz	13	10			8	7	5	3	12	I
mál	13	2	I	I						
frát	12	5	12	5					4	I
spát	12	2					1	I	11	I
wáf	12	2					2	I	9	I
tárd	11	2							11	2
dád	11	2							11	2
ráts	11	2							11	2
wáld	11	I							11	I

182 *Relative Frequency of English Speech Sounds*

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
ñ										
ñú	182	17	29	8	4	3	41	4	128	2
ñü	100	11	4	9	2	1			54	1
mñ	55	19	24	8	31	11				
dñ	51	12	29	7	4	3	3	1	15	1
bñ	49	10	30	4	19	6				
dñr	47	4	41	1	3	2	3	1		
dñs	39	13			14	8	24	4	1	1
hñ	35	10	31	7	3	2			1	1
kñ	34	18	6	3	26	14			2	1
vñ	34	4	1	1			4	2	29	1
sñ	34	24	27	18	4	4	2	1	1	1
nñz	33	7	10	2			5	4	18	1
lñ	31	18	6	5	25	13				
tñ	28	11	1	1	27	10				
kñr	28	7			13	4	14	2	1	1
dñst	27	5					27	5		
tñd	24	5					24	5		
sñt	21	4	7	2			2	1	12	1
sñm	20	5			14	3	6	2		
lñt	20	7			6	3	13	3	1	1
tñt	19	8			8	4	11	4		
pñr	17	3	6	2					11	1
tñn	17	2			16	1			1	1
gñ	17	10	1	1	14	7	2	2		
tñr	11	5			5	3	6	2		

## Appendix D

### Letter frequencies

Table D<sub>1</sub> gives the relative frequency of the letters of English, arranged in alphabetic order. The column headed *Occurrences* gives the total number of times each letter occurs, while the column headed *Items* gives the number of different places in which each occurs. Below the totals, the occurrences of the apostrophe and hyphen in these 100,000 words are similarly shown. Only 7 digraphs or diacritic letters occur in the entire 100,000 words; namely æ 2, ö 2, ö 2, and i 1.

Table D<sub>2</sub> gives the same data arranged in order of frequency, plus an analysis showing the number of occurrences of each letter initially, medially, or finally in words, or as a word by itself.

Comparing Table D<sub>2</sub> with the data on page 133 it appears that:

3	letters make up over 25% of the total letters.
6	" 50% "
II	" 75% "

Comparison with the data of Table 17, showing a total of 365,419 occurrences for the same 100,000 words, shows an excess of 19.87% of letters over sounds. In other words, as compared with a simple one sign one sound phonetic spelling, 1 letter in 6 of our present conventional spelling is quite superfluous, involving a direct waste, in the mere cost of such superfluous writing and printing alone, of over \$600,000,000 annually in the United States alone.

*Addendum—1950.* The foregoing estimate of \$600,000,000 annual waste was based on printing [and writing] costs and quantities as of the 1920 United States census. On the basis of the 1950 census figures, not yet available, this annual waste will, beyond question, largely exceed \$1,000,000,000 a year.

TABLE D1 RELATIV FREQUENCY OF LETTERS IN ENGLISH ARRANGED IN ALFABETIC ORDER

Letter	%	Occurrences	Items
a	7.88	34,536	5,352
b	1.56	6,838	1,207
c	2.68	11,747	3,148
d	3.89	17,046	3,394
e	12.68	55,465	9,493
f	2.56	11,199	1,164
g	1.87	8,191	2,079
h	5.73	25,138	1,634
i	7.07	30,955	6,058
j	0.10	421	117
k	0.60	2,610	526
l	3.94	17,261	3,668
m	2.44	10,678	1,916
n	7.06	30,902	5,480
o	7.76	33,993	4,305
p	1.86	8,162	2,154
q	0.09	403	122
r	5.94	26,051	5,569
s	6.31	27,642	6,069
t	9.78	42,815	5,366
u	2.80	12,285	2,448
v	1.02	4,481	907
w	2.14	9,396	712
x	0.16	687	214
y	2.02	8,837	1,189
z	0.06	284	131
Totals	100.00	438,023	74,422
		674 28	159 9

TABLE D2 RELATIV FREQUENCY OF LETTERS IN ENGLISH,  
ARRANGED IN ORDER OF FREQUENCY, WITH ANALISIS OF  
POSITION OF OCCURRENCE IN WORDS

Letter	%	Occurrences	Items	Initial	Medial	Final	Word	Letter
e	12.68	55,465	9,493	2,123	32,472	20,870		e
t	9.78	42,815	5,366	17,182	15,210	10,423		t
a	7.88	34,536	5,352	9,477	22,791	148	2,120	a
o	7.76	33,993	4,305	7,764	21,608	4,617	4	o
i	7.07	30,955	6,058	6,691	23,094	15	1,155	i
n	7.06	30,902	5,480	2,317	20,521	8,064		n
s	6.31	27,642	6,069	6,119	9,508	12,015		s
r	5.94	26,051	5,569	2,165	17,734	6,152		r
h	5.73	25,138	1,634	4,916	17,772	2,450		h
l	3.94	17,261	3,668	2,118	12,155	2,988		l
d	3.89	17,046	3,394	2,756	4,227	10,063		d
u	2.80	12,285	2,448	1,214	10,278	793		u
c	2.68	11,747	3,148	4,327	7,170	250		c
f	2.56	11,199	1,164	4,037	2,550	4,612		f
m	2.44	10,678	1,916	4,010	5,198	1,470		m
w	2.14	9,396	712	6,839	1,604	953		w
y	2.02	8,837	1,189	1,454	971	6,412		y
g	1.87	8,191	2,079	1,588	3,588	3,015		g
p	1.86	8,162	2,154	3,476	4,213	473		p
b	1.56	6,838	1,207	4,788	2,006	44		b
v	1.02	4,481	907	537	3,944			v
k	0.60	2,610	526	436	1,373	801		k
x	0.16	687	214		626	61		x
j	0.10	421	117	256	165			j
q	0.09	403	122	171	232			q
z	0.06	284	131	15	265	4		z
Totals	100.00	438,023	74,422	96,776	241,275	96,693	3,279	
		674	159	17	644	13		
		28	9		25	3		

**Addenda and errata****Number Page**

- ① 5 Two other word counts, publisht since the first edition of this study, deserv special mention :

Horn, Ernest, *A basic writing vocabulary*, University of Iowa Monographs in Education, First series, No. 4, Iowa City, 1926.

This list, subtitled "10,000 words most commonly used in writing," altho subject to several serious criticisms which substantially limit its usefulness, is nevertheless the best single list of its type yet publisht, and the one to which I hav chiefly turnd for a substantially longer word count list than afforded by my own investigation. Its two most serious deficiencies ar : failure to make an actual count of 372 of the commonest words, together making up a presumptiv 60% of all running words investigated, which ar estimated on the basis of an earlier and much smaller study which lumped together the data from several still smaller and diversely pland and executed investigations ; and failure to report actual unweighted frequencies—each publisht figure having been multiplied by an unstated factor from 1 to 5, dependent on the number of different categories of counted material in which the word occurrd. In consequence, available data indicate that the 9 commonest words (which make up over 25% of my own study) ar under-estimated by about 50% ; and none of the publisht data can be used as a basis for determining the frequency of occurrence of sillables or sounds.

Horn, Ernest, and Peterson, Thelma, *The basic vocabulary of business letters*, Gregg, 1943.

This list deals with 1,436,000 running words of business correspondence which wer a part of the 5,137,000 running words which formd the basis of the Horn list reviewd above. It suffers from the same defect of failing to count 372 of the commonest words, and under-estimating the commonest of these as much as 50% ; but in other respects is a very valuable source of data for the limited field investigated. The alfabetic list givs all words found in the material, not merely the most frequent, with both weighted and unweighted frequencies ; and is supplemented by a list of over 5,000 most-used words (out of a little less than 15,000 different words) in order of frequency.

*Number Page*

- (2) 17 The 500 commonest words here reported wil form over 66%.
- (3) 19 *For* 328 *been* *read* 329 *been*.  
31 " 328 " 329 "
- (4) 20 *Add* 85 *today*.  
20 *Omit* 68 *today*.  
25 *Omit* 17 *to-day*.  
40 *For* 68 *today* & 17 *to-day* *read* 85 *today*.
- (5) 22 *Add* 40 *light/7*  
26 *Omit* 18 *light*.  
36 *For* 18 *light* *read* 40 *light/7*.
- (6) 29 *Add* 11 *doctrine/3*.  
33 " 11 "  
*For* *marz\** 11 *read* *marz\** 7 (*terz* 4).
- 68 " " " " "  
106 " " " " "
- (8) 52 *For* *ter* 30 *read* *ter* 29.  
62 " " " " "  
114 " " " " "
- (9) 57 *For* *hrū* 96 *read* *hrū* 94.  
69 " " " " "  
117 " " " " "
- (10) 135 This alfabet, which was adopted by the Simplified Spelling Board in 1922, was used in this volume publisht in 1923. In 1928, this SSB alfabet was superseded by the SRA (Spelling Reform Association) fonetic alfabet, prepared by a joint committee of the Spelling Reform Association and the Simplified Spelling Board with the aid of Frederick W. Goudy, the foremost type designer of his generation. Copies of the SRA alfabet may be obtaind from the Simpler Spelling Association, Lake Placid Club, N.Y.
- (11) 145 *Add* (*midst* -dst).  
This changes the figure 181 on pages 139, 140, 146, and 148 to 182.
- (12) 147 *Add* -dst (see note (11) immediately above).